DISSERTATION

EXPLORING A STATE WILDLIFE AGENCY'S ACCOUNT OF CONTRACTED WILDLIFE MANAGEMENT AND FACTORS INFLUENCING CONTRACT USE

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ABSTRACT

EXPLORING A STATE WILDLIFE AGENCY'S ACCOUNT OF CONTRACTED WILDLIFE MANAGEMENT AND FACTORS INFLUENCING CONTRACT USE

State wildlife agencies are charged with trust responsibilities for wildlife resources. However the authorities of the agencies do not encompass all those needed to fulfill the trustee duties. This compels engagement of other government agencies, non-government entities and private parties in state wildlife management through incentives, collaborative management approaches and public engagement processes. However, details about the use of contracts related to collaborative management efforts and the relationships between the use of contract tools and state wildlife agency funding is not available. Accounting records and interviews with agency staff and contractors provide an account of collaborative management contracting which is not reported elsewhere.

An in-depth case study of Colorado Division of Wildlife's (CDOW) use of contracts to accomplish wildlife management purposes was developed using accounting, appropriation and budget records and interviews with CDOW staff, state procurement staff and both non-profit and for profit contractors. A limited, interview only, case study of the Wyoming Game and Fish Department's (WGFD) use of wildlife management contracts was use to explore similarities or differences between two state wildlife agencies. CDOW's contract accounting records and legislative appropriations for fiscal years 1999 through 2010 used in the evaluation of the extent and changes in use. Twenty three interviews were conducted in Colorado and four with WGFD staff.

The 12 fiscal years of contract accounting and appropriation records were explored for hypothesized relationships suggested from the government contracting literature. It was

hypothesized that state wildlife agencies use of contracts differed from that described for other government agencies in the public administration literature in which contract use has been related to employee numbers or funding and shows increased use of contracts. The CDOW accounting records portray relatively stable levels of contract numbers. Service contracts, defined as all services and grant contracts, were not statistically related to total fiscal resources or staff levels. Total service contracts per fiscal year showed a small increase in numbers over the period however the expenditures on these contracts did not statistically differ. The number and value of contracts between CDOW and other government agencies or NGOs did not have statistically significant increases over the 12 year period. The value of grants contracts was found to be related to funds available. Further, grants and capital property acquisition spending was related to available fiscal resources.

The informal semi-structured interviews were used to explored why and how extensively collaborative type contracts were used and to explore the benefits, difficulties and capacity needs related to their use. Contractor interviews focused on relationship with the state wildlife agency, difficulties in contracting with the agency and capacity issues related to contracting with either of the wildlife agencies. Interview content was analyzed using two approaches. One employed an a priori agency theory framework to code all interview transcripts. The second approach used a grounded theory based approach explore the themes related to collaborative contract use in the interview transcripts.

An agency theory analysis was employed to provide insight into the agencies' contractor relationships and the interaction of agency theory with collaborative management contracts. The analysis of the procurement and wildlife agency principle-agent conflicts employed a shifting principle identity in which procurement/accounting staff and wildlife staff roles were switched to

allow fuller characterization of the interview content. The conflict between the formal accountability based procurement procedures and wildlife staff's need for more flexibility is represented by the moral hazard coding characterized as goal conflicts. Wildlife agency staff identified adverse selection elements of performance and asymmetrical information most frequently in relation to contractors which is consistent with the emphasis placed on experience and relationships and the reported limited number of suitable contractors.

Two main thematic elements emerged from the interviews as influencing the extent to which collaborative management contracts are used. The first is a systemic theme which identifies elements outside of the wildlife agency and includes legislation, budget, procurement policies and available contractors. The second is an institutional theme which includes constructed realities surrounding the relationships with and role of procurement processes, wildlife management norms and professionalism. A decision model is developed form informant provided content. The decision model and themes are supported by the procurement staff and contractors and accounting records. The results from the WGFD case support the results from the larger CDOW case suggesting they are characteristics shared by state wildlife management agencies.

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TABLE OF CONTENTS

1) INTRODUCTION

Government procurement by contract has a long history and evolving relationship with vendors as suppliers of public goods and services (Cohen and Eimicke 2008). Kettl's (1993) narrative of George Washington's difficulties with revolutionary war suppliers locates government contracting and vendor-government relationships at the beginning of the national purchasing record. Growth in government programs has widened the range of products and services procured by contract by different governmental levels and are the subject of numerous investigations (see for example Van Slyke 2003, Hefetz and Warner 2004, Brudney et al. 2005, Ni and Bretschneider 2007, Fernandez 2009, Brown et al. 2010).

Over the past 40 plus years agencies in many parts of government have shifted from an employee based direct service delivery model to increased use of indirect contract based service delivery. Policy initiatives and political philosophies associated with increased use of contracts have focused on service enhancements without adding government employees or on efficiency generally associated with market based approaches (Frederickson 1996, Rhodes 1996b, Gilmour and Jensen 1998). A key outcome of these initiatives is the expanded use of third parties to implement public programs. Collaborative and public engagement efforts by government also increases the number of third parties engaged in governmental roles and task as both a contractor and as a participant. Public administration authors point out that using contractors to deliver government services or collect and manage information creates a variety of policy, accountability and management dilemmas for public agencies (Salamon 1981; 1987, Frederickson 1996, Kettl 1997, Gilmour and Jensen 1998, Kettl 2000b, Salamon 2004, Kettl 2006). Salamon (1987 and 1981) refers to the use of contracts for provision of government

services as “third party government”. The use of contracted services and other indirect tools of government are located within the larger concept of agency governance (Salamon 2002a).

The focus of much of the government contracting literature is directed at federal agencies. A limited number of researchers have used contracts by state and local governments as the focus of research efforts. The available state and local government contracting literature pays no attention to state wildlife management agencies and their programs. The bulk of that literature focuses on social services, public health, environmental enforcement and infrastructure contracting. Yet wildlife management is a well described government function divided into federal and state responsibilities. Federal responsibilities are broadly described as management and regulations related to migratory species, marine species, treaty species and federally determined threatened, endangered or candidate species. The individual states retain responsibilities for the other aspects of wildlife management. State responsibilities are delineated by the Public Trust Doctrine, relevant court cases (Sax 1970, Bean and Rowland 1997, Freyfogle and Goble 2009, Bacheller et al. 2010) and state statutes. The shared legal and historical backgrounds of state wildlife agencies suggest these agencies may share other characteristics as well.

The framework provided by the Public Trust Doctrine presents state wildlife agencies with a dilemma in meeting their trustee responsibilities. State wildlife agencies have authorities to administer distributive policies effecting wildlife, for example controls on possession or take, but limited or no authority to manage the state’s wildlife habitats except for lands owned or controlled by the state wildlife agency. Lacking authority over the critical habitat component makes the state wildlife agencies success in its trust obligations dependent on the third parties controlling the habitats. Obtaining favorable consideration of wildlife habitat needs requires the

agencies to engage in collaborative or exchange based actions (Fleishman 2009). Many of the successful wildlife conservation initiatives from the early years of wildlife management which are embedded in current wildlife management programs were the result of government agencies, private organizations and individuals collaborating for a common cause (Trauger et al. 1995). Yet state level natural resource management is report as more closely matching the clientism of the 1960's than the participatory and collaborative approaches more frequently seen in federal natural resource administration (Gill 1996, Nie 2004a, Koontz 2007). The formal and informal rules and common beliefs sustaining the professional management concept are also found to influence the partners selected and extent of an agency's collaborative efforts (Milward and Provan 2000).

State wildlife agencies use a variety of processes to facilitate planning or participatory processes. While increased understanding and commitments to collaborative management is essential, they are noted as insufficient in themselves to facilitate and maintain collaborative management (Wondolleck and Yaffee 2000, Schusler et al. 2003). Structural support and processes are needed to sustain joint action (Schusler et al. 2003). At some point collaborative processes require some degree of sharing of authority or resources to be effective (Trauger et al. 1995).

As government agencies, state wildlife agencies comply with statutes, rules and policies intended to insure government accountability. Agreements involving money or special authorities, no matter their collaborative or delegation intention, are subject to accountability requirements that inform the controls, procedures and authorizations embodied in the state's formal procurement and contracting process (deLeon and Varda 2009). This study proposes to use contract accounting records which are part of the accountability requirements as a means to

gauge the collaborative management activity in the Colorado Division of Wildlife[1] (CDOW). The records for contracts for third party professional service provision and grants are used as indicators of collaborative management activity. Grants are viewed as inherently collaborative, requiring boundary spanning action (Agranoff 2007). Service contracts are more difficult to definitively characterize as the potential uses encompasses both delegated task and collaborative management implementation. However, Colorado's fiscal policy requires service contractors to operate independent of direct control of the state as well as being independent entities (Controller 2009b; 2010). The accounting records limit the ability to identify the specific purpose of the contracts themselves. In this analysis, service contracts are included as a contract type used to support collaborative management.

In selecting contract categories as measures of collaborative management, it is recognized that other collaborative management support such as employees' time or advice are not considered in the contracts. While these actions are important, the direct measure of shared resources and authorities through contracts captured in the state's accounting system are the focus of this analysis. Further, the public administration literature describes the evolving and spreading use of indirect or third party service provision, yet little published information is available on state wildlife agencies' use of indirect contract tools. This project will begin to address the limited information by exploring the extent of contract use in wildlife management a state wildlife agency[2]. Accounting records of a state wildlife agency and interviews of

[1] Effective July of 2011, the Colorado Division of Wildlife and the Colorado Division of Parks and Outdoor Recreation were merged into a single agency, the Colorado Division of Parks and Wildlife. The term Colorado Division of Wildlife is used throughout this document as a reference to the agency's name during data collection and as it appears on records and data sets used in this project.

[2] State wildlife agency as used in this document is used as a generic reference to state agencies responsible for fish, wildlife, non-game, and other variously termed wildlife responsibilities.

individuals with knowledge of contract use to accomplish state wildlife management needs are explored to address:

- How extensively are service and grants used?
- Has the use of contracts increased over time?
- What reasons are given for contract use and are they similar to those in the literature?
- How well does agency theory capture a state wildlife agency's contract use considerations?
- Are capacity, accountability or boundary management issues identified?

A case study approach was used at the CDOW to explore these questions. The case study included analysis of the contracting records and interviews with CDOW staff, CDOW contractors, staff of the Colorado Department of Natural Resources (CDNR) and staff of the Colorado Attorney General's Office. A small case study based on interviews with selected Wyoming Game and Fish Department (WGFD) staff is developed to compare with the CDOW case study. The chapter content following this introduction are:

- A literature review
- A methods summary
- A Personal narrative- provides the reader insight into my history with the wildlife management field as disclosure and influence in the study
- An analysis of overall contract use, use changes over time and factors related to contracts based on 12 fiscal years of CDOW's official contract accounting records and legislative appropriations

- An agency theory based exploration comparing wildlife agencies, wildlife agency staff, contractors and procurement staff perspectives
- Emergent themes from informant interviews on contract use decision factors, implementation considerations and capacity
- Conclusion
- Literature cited

The content is primarily a single case study of the CDOW. A smaller interview based case study of the WGFD is compared with the larger CDOW case within the agency theory and contract use themes chapter.

2) LITERATURE REVIEW

This review of the literature is presented in three general topic areas addressing state wildlife agencies, contract use and theoretical considerations as separate subsections. The first subsection covers a brief summary of the historical, legal and profession-specific characteristics of wildlife management in the United States emphasizing state wildlife management agencies. The second subsection is an overview of contract use in government settings, including capacity issues and challenges posed by contracts. The third subsection briefly covers select theoretical concerns related to this study. The topic areas facilitate exploring the hypothesized difference in contract use by state wildlife agencies and those of governmental agencies reported in the public administration literature. Individual chapters include literature reviews specific to the chapter contents that may not appear in this chapter.

State Wildlife Agencies as Unique Units of Study

The argument that state wildlife agencies are unique entities with distinctive characteristics that are expected to influence use of contracts and contractors requires some elaboration. The following section explores state wildlife agencies' relationship to public trust resources and why they share similar legal, financial and historical origins which differ from other government agencies. The material covers the legal and historical background of state wildlife agencies in four areas: wildlife as part of the public trust doctrine; Progressive Era origins and expansion to present day state wildlife agencies; the relationship of non-governmental conservation organizations to wildlife management agencies; and recent literature on change in wildlife management agencies.

Wildlife as a Public Trust resource.– Freyfogle and Globe (2009) note that perhaps the single most interesting feature of wildlife in America is the legal position of wild animals as

owned collectively by the people with the states as trustees. Scholarly discussions and court decisions about the legal status of wildlife in the United States often start by attributing public trust doctrine to Roman legal traditions dealing with fishing and open use of waterways. The Roman legal concept was incorporated into English common law and transferred to the English colonies in North America prior to the American Revolution (Sax 1970, Connolly 2009, Freyfogle and Goble 2009, Bacheller et al. 2010, Bruskotter et al. 2011). With the success of the American Revolution, American law coalesced around a uniform legal doctrine that vested the citizens as beneficiaries of a public trust ownership of wildlife resources managed on their behalf by the states (Sax 1970, Freyfogle and Goble 2009, Bacheller et al. 2010).

State level court cases began appearing in which the courts applied and supported the legality of the public trust doctrine. In 1842, in *Martin v. Waddell* (41 U.S. 367, 407), the U.S. Supreme Court upheld the public ownership elements of the public trust doctrine in a case disputing access and use of oyster beds (Sax 1970, Connolly 2009, Bacheller et al. 2010). In a later case, the individual states' trust ownership was significantly strengthened by the U.S. Supreme Court findings in *Geer v. Connecticut* (161 US 519 1896), where the key question was the ownership of wildlife. In *Geer*, the court concluded that the ownership of wildlife converted from the English government to the existing states at independence and to subsequent states as they were admitted to the union (Bean and Rowland 1997, Freyfogle and Goble 2009, Bacheller et al. 2010, Bruskotter et al. 2011).

The *Geer* case created conflicts between the federal governments' designated powers and states' trust ownership which played out over time in different court venues. Ultimately the conflicts led to the *Hughes v. Oklahoma* decision (441 US 322 1979) in which the Supreme Court expressly overruled *Geer*, holding that the federal powers over interstate commerce was

superior to the state's wildlife property rights. Yet the decision continued to affirm the powers of the states to protect and conserve wildlife within their borders (Johnson and Galloway 1996, Bean and Rowland 1997, Freyfogle and Goble 2009, Bacheller et al. 2010). State law, state court actions and federal court actions have continued to affirm the legal concept of wildlife as a public trust resource under state management while recognizing federal jurisdiction over aspects dealing with treaties, interstate commerce, endangered species and interstate transportation of wildlife (Freyfogle and Goble 2009, Bacheller et al. 2010). Bacheller et al. (2010) also reported that 41 states had clear mention of the public trust doctrine in their state constitution or statutes and 48 state agencies had mission and purpose statements consistent with public trust doctrine duties. They also report that 41 states had state case law recognizing public trust doctrine, eight had no case law concerning the public trust doctrine and one state had a single state case in which the public trust doctrine was not specifically accepted by the court.

Wildlife agencies' Progressive Era roots.– Samuel Hays' (1959) overview of the conservation movement during the Progressive Era (which he defines as between 1880 to 1920) notes the movement's support of professionalism and technical management of natural resources was a crucial element that bridged the goals of both federal government officials and conservation organizations. To meet these mutual goals, new administrative approaches and professional staff with scientific training were needed (Hays 1959). Gonzalez (1998) argues economic elite theory better explains the development of forest management policy during the Progressive Era, but also points to the involvement of government officials and conservation interest in development of what he terms "practical forest management". The rational, technological approach favored by conservation groups complemented the governmental entities desire for efficiency which converged in the development of an instrumental, normative natural

resources management approach with government as the collective authoritative agent (Adams 1992, Mullner et al. 2001, Nie 2004a, Dryzek 2005).

State wildlife management.– State management of wildlife resources prior to the mid-1800s was generally accomplished through statutory means to restrict the take of selected species or set the manner or timing of take. This was accomplished through legislative action and specially appointed "game wardens" (Leopold and Brooks 1933, Bean and Rowland 1997, Sherblom et al. 2002, Freyfogle and Goble 2009). In Colorado's case, the first state legislature in 1876 established a State Fish Commissioner and a set of fisheries related laws (Barrows and Holmes 1990). In 1891 the legislature enlarged the State Fish Commissioner position into the State Game and Fish Commissioner and added the first wardens as state employees creating what would become the CDOW (Barrows and Holmes 1990). The Progressive Era also witnessed the emergence of other state wildlife agencies (Williamson 1987) and many of the federal agencies charged with federal wildlife management responsibilities. Political support from non-governmental conservation interests enabled the enactment of laws such as the Forest Reserve Act of 1891, the Lacey Game and Wild Birds Preservation and Disposition Act of 1900, and the establishment of the first federal wildlife refuge in 1903 (Williamson 1987).

The conservation interest active in the Progressive Era have their roots in the local hunting or fishing clubs that began to appear in the early 1800's, with the earliest reportedly dating from 1832 according to Brown (2010). New wildlife conservation entities appear during the Progressive Era time frame, often with founders that were active in the national resource discourse and policy setting arenas. Examples include the Boone and Crocket Club founded in 1887 by George Bird Grinnell, Theodore Roosevelt and others; the Sierra Club founded in 1892 by John Muir and others; the Audubon Society established in 1896 and as a national organization

in 1905; the Wildlife Management Institute in 1911; and the Izaack Walton League founded in 1922 (Williamson 1987, Brown 2010, Izaak Walton League of America 2012, National Audubon Society of America 2012). These conservation groups along with others supported changes in wildlife law and management but were also policy insiders (Hays 1959, Gonzalez 1998, Brown 2010).

The concept of professional management of wildlife continued to develop after the Progressive Era timeframe defined by Hays (1959). Federal legislation directed at supporting expansion of programs and professional resource management lead to the Migratory Bird Conservation act of 1929 and the Pittman-Robertson Act of 1937 which is notable for providing excise tax funding to state wildlife agencies to manage hunted species (Williamson 1987). Later actions would expand similar funding to fisheries.

The demand for individuals trained in wildlife management increased as a result of the creation of government positions and lead to the emergency of a wildlife management profession in the 1930's (Leopold and Brooks 1933, Swanson 1987). Brown (2010) notes Aldo Leopold became the first professor of wildlife management in 1933. Leopold is also credited as a key leader in defining the wildlife management profession (Organ et al. 2001). Other actions also influenced and shaped the wildlife profession including the Cooperative Wildlife Research Unit Program, a joint federal, state and university program for wildlife management research and training, established by federal legislation in 1935 (Poole and McCabe 1987, Organ et al. 2001). Likewise The Wildlife Society formed in 1937 by Leopold and others is active in establishing training requirements, wildlife management practice, credentials and certification (Swanson 1987, Organ et al. 2001). These institutions remain active informants in wildlife management.

North American model and institutional features of wildlife management.– Geist et al.'s (2001) presentation at the 66th North American Wildlife and Natural Resources Conference was not the first discussion of what has been called the North American model of wildlife management (the model) but it is perhaps the best known presentation. The model is a conflation of a historical success story as well as an argument about the future of wildlife management (Geist et al. 2001, Organ et al. 2001, Jacobson and Decker 2006, Dratch and Kahn 2011, Lepczyk et al. 2011, Nelson et al. 2011). Discussions of the future of wildlife management are linked to either a defense of the model or view the model as a point of departure to explore changes. More importantly for this review, the literature describing and discussing the model do not contest institutional characteristics of the model including its instrumental and normative practices, historical associations, benefits and accomplishments. Rather the discussions have largely argued the scope and desirability of change.

The wildlife management profession and wildlife agencies have been characterized by various authors as an institution (Mullner et al. 2001, Jacobson 2008b, Buck 2009, Decker et al. 2011). The institutional characterization follows DiMaggio and Powell's (1991), Scott's (1995) and Lawrence and Suddaby's (2006) general characterization of institutions as having: regulative elements (i.e., formal rules and laws); normative elements (i.e., values and norms); and cultural-cognitive elements (i.e., what people know and their social construction of reality).

Gigilotti et al. (2009) reframes the elements of institutions and history into a wildlife management paradigm. The paradigm establishes boundaries and informs those in the paradigm how to frame problems, the accepted set of methods and tools available and how to behave inside the paradigm boundaries. The legal and historical background of wildlife management in the United States would suggest similarities in state wildlife management agencies would exist in

part due to path dependency (Greener 2002), which is also noted by writers describing wildlife management and the state wildlife agencies (Nie 2004a, Buck 2009, Jacobson et al. 2010 and others). The historical background of increased professionalization and development of credentials and training requirements in wildlife management would also be expected to contribute to institutional similarity (Meyer and Rowan 1977, DiMaggio and Powell 1983, Bartley et al. 2008).

The brief overview of the origins and legal framework of state wildlife management agencies identifies similarities in state wildlife agencies. The similarities also mark the differences of these agencies from the public health and welfare agencies that are often the subject of scholarly inquiry. These features suggest state wildlife agencies use of third party contracts to achieve wildlife management goals will differ from the literature's descriptions of local and state government contracting.

Contracting: the tools, types, challenges and capacity

Government agencies' roles in delivery of services and products to citizens have evolved rapidly over the past 40 years into what has been termed collaborative government management. The context behind the changes are captured by the variously named "new public management", "reinventing government", "free marketism", "small government movement" and "government as a business" references share objectives to reduced government size, increased efficiency, improve services through the use of policy tools such as contracting, grants and indirect service provision (Frederickson 1996, Rhodes 1996b, Gilmour and Jensen 1998, Salamon and Elliott 2002). The result is continued expansion of government contracting with an increasing range of contractors or, as Salamon (1981; 1987) terms them, "third parties".

Government's expanded use of contractors to deliver services, obtain complex products, or process information creates variety of policy, accountability and management dilemmas that are different from and more complex than those found in direct service provision (Salamon 1981; 1987, Frederickson 1996, Kettl 1997, Gilmour and Jensen 1998, Kettl 2000b, Salamon 2004, Kettl 2006). Salamon (2004) also notes another important outcome of the "reinventing government" efforts is a further expansion of third parties use of public authority and funds which Salamon calls third party government.

Devolution.– Devolution in public policy generally refers to one or a combination of two elements. The first is moving governmental authority and decision levels from higher levels of central government agencies to lower government levels—i.e. federal to state or state to local government where limits on government size may result in inclusion of local interest and outside contractors (Ellwood 1996, Auger 1999, Gainsborough 2003, Goodsell 2004, Romzek and Johnston 2005). The second element applies market approaches, private sector incentives and other mechanisms to government programs in ways that effectively move government authority or resources outside organizations (Ellwood 1996). The two concepts can be mixed and take many forms but all exhibit increased contract use (Christensen and Lægreid 2001, Van Slyke and Roch 2004, Romzek and Johnston 2005). Essentially devolution is a decentralization of government authority, responsibility and resources (Bartley et al. 2008).

Public administration literature references devolution in connection with defense, public safety, and social welfare areas. However, reports of devolution in natural resource management are limited. Mutter et al. (1999) reported that devolution of federal natural resource policy making and regulatory authority to the states had not occurred. Yet criticism of the devolution of land and environmental management by the U.S. Forest Service, Department of Interior and the

Environmental Protection Agency appear contemporaneously to Mutter et al.'s report (Coggins 1999). Natural resource activities noted as most often devolved are licensing, fee collection, planning of land and water use, and environmental standard compliance (Bartley et al. 2008).

Natural resource literature also devotes significant amounts of attention to management approaches involving partnerships, collaboration, co-management or co-operative environmental management as devolved decision making tools to achieve various goals (Plummer and FitzGibbon 2004). Successful application of these tools depends on some degree of decentralization or devolution of authority and resources, either directly or indirectly (Arnstein 1969, Sullivan and Skelcher 2002, Burns and Cheng 2005, Fung 2006). Management of public lands or waters which are wildlife habitats, typically federally owned ones, is the subject of some authors who discuss devolution of federal government roles (Nie 2004b). Wildlife management as a specific topic is not directly found in the devolution literature.

Contracting – commodity, purchase of service and policy tools.– Government purchases can be thought of as either simple, commodity type purchases or complex products or services (DeHoog and Salamon 2002, Curry 2009, Kettl 2009, Brown et al. 2010). Brown et al. (2010) defines simple products as market based exchanges of easily defined products with verifiable cost, quantities and quality which are available in markets with large numbers of buyers and sellers. Under these conditions, purchase contracts are relatively complete specifications with the roles of buyer and seller fully described and competitors exist to provide backup to any given supplier (Brown et al. 2010). Complex products on the other hand are not easily defined, making the cost, quality and quantity difficult to fully develop and where competitive markets are limited or nonexistent (Van Slyke 2003, Van Slyke 2007, Kettl 2009, Brown et al. 2010). Purchase of

service contracts where the recipient is an external party are considered complex products (Kelman 2002).

The complexity of the product, the vendor and who is served largely determines the degree of specificity and formalization of contracting processes (DeHoog and Salamon 2002). DeHoog and Salamon (2002) identified three approaches to contracting for services based on characteristics of the contracting environment. In a competitive contracting environment, formal request for proposals and competitive bids are used. Negotiated contracts, based on request for qualifications or similar approaches are used to negotiate for services. Cooperative or relational contracts are used were positive relationships, often described as trust, have developed and a desire to work with the provider in the future is present (DeHoog 1990, DeHoog and Salamon 2002, Brown et al. 2006).

Government uses contracts as the vehicle to enable collaborative management tools such as grants, incentives, and waivers (Kettl 2002a). Salamon (2002a) argues that the demand for efficiency has emphasized government use of indirect tools which are managed and settled through legally binding contracts. Both Kettl and Salamon locate the skills need in government to match and manage the indirect tools including providers, contract content and reporting within an agencies general procurement processes (Kettl 2002a; b, Salamon 2002a).

Contracting capacity.– Gargan (1981) noted that governmental capacity is simply the ability to "do what it wants". However, Gargan elaborates on the "do what it wants" statement to argue that a set of agreed-to definitions of capacity, its sources and measurement do not exist and yet local governments differ in their ability to get things done. Gargan (1981) argued that authors use capacity in a rhetorical manner rather than in some measurable term. Argranoff and McGuire (1998) also comment on the "mysterious" nature of capacity and capacity building reported in

public administration literature. Others suggest capacities and skills differing from those employed in a traditional, hierarchical, direct government are required and specific to the tool used (i.e., contracts, incentives, or grants) (Kettl 2002a, Salamon 2002b, Brown and Potoski 2003a, Fernandez et al. 2008). Kettl (2002a) and Gargan (1981) both view the performance of government or a government agency as equivalent to the ability to manage the indirect tools applied while maintaining accountability of all parties.

The complexity of the different collaborative management tools, their application, the policy purpose and the application environment conspire to frustrate formulation of widely applicable capacity measures. Honadle (1981) opined that a "consensus definition of capacity" was unlikely and that definition of the concept in relation to its application was more appropriate. Examples of the differing assessments of capacity include linking capacity to inputs such as staffing or spending (Bowman and Kearney 1988) or rules to direct or restrict behaviors of political and administrative actors (Hou et al. 2003). Looking specifically at contract use within a state government agency, O'Neil (2007) identified information on contracting and management support as closely tied to capacity while Mead (2002) related state level capacity for welfare reform to the states' political and administrative culture. Donahue et al. (2000) examined selected cities for relationships between city performance and personnel management concluding that some characteristics of personnel management influenced the cities' performance ratings on surveys and hence represented measures of capacity. Farazmand (2009) argues the global nature of complex problems and proposes that governments at all levels need 11 administrative capacities which Farazmand summarized as: structural; process; cultural or normative; institutional and organizational; learning leadership and managerial; strategic human resources; financial resources; cognitive; technological; ethical accountability and legal/constitutional

(democratic representation, responsiveness and fairness); and, developmental (capacity in administration and administrative development) (Farazmand 2009).

From a collaborative management viewpoint, capacity descriptors often reference characteristics needed to build, support or sustain collaborative process (Fleeger and Becker 2008, Garcia-Ramirez et al. 2009). Gazley (2010) points to the importance of collaborative capacity created by the age of the partnership and the extent of its activities. A collaborative network's ability to effectively coordinate the members activities highlights the need to make "things work" as well as fostering changes in underlying assumptions and beliefs to support the work (Nowell 2009). Complex problems being addressed through collaborative efforts face the problem of maintaining capacity to sustain both the institutional commitments to the goals and the social capital supporting the partnership (Weber et al. 2007).

A framework to organize the different characterizations of capacity was presented by Hale and Slaton (2008). They employing a development timeline of capacity descriptors from early concepts of government capacity built on inclusion of public organizations and the local environment in deliberations (as in Gargan 1981, and Honadle 1981) to the contemporary concepts of public entities in networked environments such as those described by Agranoff (2007), Weber et al. (2007) and Provan and Milward (2001). The timeline description of capacity conforms with several authors' positions that capacity is not a static set of parameters but is a dynamic characteristic related to the specific environment, objectives, collaborative management mechanisms and the parties.

Accepting the proposition that capacity descriptors are related to the specific circumstances allows some general characteristics to be described. Capabilities important in management of contracts which underlie many of the indirect government tools can be grouped

into “programmatic” or “operational” skills. Programmatic skills are characterized by Salamon (2002b) as activation, orchestration and modulation skills. Operational skills are often specific to functional capacities including goal setting, negotiation, implementation capability, financial management capabilities, evaluation capability, communication and bridging abilities (Kettl 2002a, Brown and Potoski 2003a). Generally the literature supports the view that indirect modes of government action are not self-executing and require active, program level management in which policy goals and choice of tool (regulations, contracts, grants, incentives etc.) are meshed to the environment and operating skills.

A consequence of contracts and other indirect government tools is the development of networks focused on policy issues. These networks are composed of government agencies, organizations and individuals involved in the program (Kettl 2002a, Salamon 2002b, Cohen and Eimicke 2008, Johnston and Romzek 2008, Koliba et al. 2011). Not surprisingly, the programmatic level capacities for management of indirect government programs described by Salamon (2002b) share similar skills or capacities with those suggested for engaging with policy networks (Peters and Pierre 1998, Milward and Provan 2000, Kettl 2002b, Cooper 2003, Agranoff 2007, Koliba et al. 2011). Further, networks composed of government officials and contractors are noted for creating additional challenges in complex product or purchase of services projects. The interdependency of the parties in these circumstances creates questions about the boundaries between public and private actions (Frederickson and Smith 2003, Kettl 2006, Agranoff 2007, Brown et al. 2010). Boundary management capabilities needed in third party service contracting for complex products are different from the more commonly found agency skills associated with procurement contracts (Kettl 2006).

Boundaries in organizations can be roughly equated to where or how lines are drawn between where the organization ends and its environment begins, i.e. what is of the agency and what is not (Hernes and Paulsen 2003). Hernes and Paulsen (2003), taking a research perspective, note that working with organization boundaries can create a dilemma due to boundaries' potential to exist as an inner mental structure of the observer or as an external structure of an organization. The realist view of boundaries is at the heart of Kettl's (2006) construction of five boundaries in governmental agencies. He describes mission, resources, capacity, responsibility and accountability as the important organizational boundaries challenged by indirect service provision and associated networks (Kettl 2000b, Kettl 2002a, Sullivan and Skelcher 2002, Kettl 2006). The organizational dynamic introduced into government agencies from the inclusion of non-governmental parties is that boundaries are interpreted and shifted by stakeholders from inside and outside of the agency (Rafaeli and Vilnai-Yavetz 2003). Buck's (2009) summary of wildlife management agency capacity and boundary challenges follows Kettl's general outline of agency boundaries.

In summary the capacity literature provides a framework to ask questions about a wide set of characteristics ranging from relatively easy determined empirical measurements like number of employees or agency funding levels to less concrete concepts such as agency boundaries or strategic management abilities. The conclusion drawn from this literature is capacity measurements and the importance attributed to certain factors is dependent on the circumstance and theoretical basis. In this study, the capacity and boundary literature serves as a point of departure that provides a linkage between the factors that limits an agency's ability to accomplish what it wants to get done and boundaries and capacity needs.

Accountability and legitimacy.– Public administration scholars note that when contractors serve in traditional direct governmental service functions they are positioned between the agency and its policies. In this position contractors take a more central role in public policy formation and implementation (Gilmour and Jensen 1998, Kettl 2000b). The role change increases the complexity of program management for the agency while adding access points for related networks, often described as horizontal networks due to their arrangement around a policy or issue and outside the agencies' administrative control (Kettl 2000a, Salamon 2002a, Kettl 2006). As Kettl notes, in these networked arrangements elected officials and citizens continue to expect stable, direct government provision of services and direct relationship between program objectives, funding, government employees and accountability as found in traditional hierarchical government. However, the delivery of program services in networked third party systems do not respond to traditional budgetary tools and organizational controls since these controls do not directly impact the third parties and negatively impacting the agency's ability to manage the complex systems (Kettl 2000b, Salamon 2004, Kettl 2006). The local nature of third party program delivery also facilitates the recasting of programs to more closely align with the third parties own or local objectives which further confuse accountability (Posner 2002, Salamon 2004).

Collaborative management tools create accountability and legitimacy questions as goods and services normally considered direct government services are delivered by others (Gilmour and Jensen 1998, Milward and Provan 2000, Posner 2002). The accountability problem is larger than the simple management of contracts or contractors as suggested by Cohen and Eimicke (2008). Contract oversight and management of contractors is important but additional challenges to legitimacy and accountability emerge when third party providers directly engage in political

processes that affect the program (Kelleher and Yackee 2009). The insider status of parties in a policy network also affords more influence politically and administratively over programs and diminishes the influence of out-of-network parties (Kettl 2002b).

Skills reported as useful in addressing the accountability and legitimacy challenges in collaborative management settings are often grouped into one or more of the following categories: skills to deal with contractor's political advocacy; maintaining agency accountability in circumstances where contractors use programs to pursue their perspectives and goals; communication skills for multi-party networks; management skills required in horizontal networks; and maintaining agency legitimacy with public while third parties are the public face of the program (Posner 2002, Smith and Ingram 2002, O'Toole and Meier 2004, Salamon 2004, Van Slyke and Roch 2004, Kettl 2006). Legitimacy may also be expressed as control and authority as noted in the previous wildlife management paradigm literature. Control and authority are anticipated to be important considerations in state wildlife agencies use of contracts.

Contracts in wildlife management.– State wildlife management has a number of distinctions previously reviewed including public trust doctrine relationships and no local government component. These features differ from the federal-state-local government frameworks typically found in service delivery in social and protective services settings reported by authors such as Kettl (2006) or Salamon (2004). Many studies of government capacity have largely focused on federal agencies or on health and social service programs at the state and local levels exemplified by Gainsbourough (2003) report on the variation in state government's response to devolution of welfare services.

Searches based on the key words of state agencies, public trust doctrine and collaborative management yield few results outside of environmental regulatory topics and institutional change topics (see for example Jacobson and Decker 2008, Buck 2009, Jacobson et al. 2010). No specific linkages between contracting, contract management and contracting capacity within state wildlife agencies surfaces. However the literature on natural resource agencies contains numerous references to efforts to manage and/or engage the public, communities, contractors and corporate interest in collaborative management, regulatory processes and local decision making. These efforts are variously labeled but most often identified as collaborative management or public participation. The efforts are often related to specific management topics, wildlife species or geographic locations. Generally the descriptions offer no assessment of agency capacity, capacity needs or contract impacts. The reports primarily focus on collaborative processes and social interaction (see for example Leach 2006, Ansell and Gash 2008, Margerum 2008).

State wildlife agencies would be expected to be subject to similar efficiency and growth limitations which lead to the enlarged roles of contractors as reported in the public administration literature which (Frederickson 1996, Rhodes 1996a, Gilmour and Jensen 1998, Kettl 2000b, Kettl 2000a, Salamon 2004 and others). Employees of natural resource agencies reportedly view contractors variously as political allies, service providers, sources of labor and sources of expertise to less positive assessments as incompetents and in some cases as threats to agency goals or objectives (Jacobi and Wellman 1983, Trauger et al. 1995, Foster 2001 and personal observations). Contractor's assessment of contract administration and management of contractor relations by state wildlife agencies are not represented in the literature.

Natural resource agencies are often portrayed in the literature as viewing third parties as a way to benefit the agencies objectives by completing tasks, "leveraging funds" (i.e., looking for

cost sharing, generating political support for the agency and its programs), managing or providing volunteers, or analyzing projects for suitability to distribute to other non-agency parties (Jacobi and Wellman 1983, Trauger et al. 1995, Foster 2001). Reports of third party impacts on wildlife agency policies typically focus on the outside parties as representatives of either traditional user groups or interest groups not aligned with traditional wildlife user groups (Mutter et al. 1999, Nie 2004a, Jacobson and Decker 2008, Buck 2009). Examination of third party service provider impacts on wildlife agency policy, capacities and agency boundary issues are not evident in this literature.

Agency theory.– Exploring contracts and use of contractors necessarily invokes consideration of agency theory. Simply described, agency theory presents the aspects of a relationship where one party (the principal) delegates work to another (the agent) using a conceptual contract as a prop or construct to highlight the elements of the relationship (Eisenhardt 1989, Shapiro 2005). Agency theory is applied in many settings and allows different academic disciplines to apply discipline specific definitions to highlight aspects of the relationship. General application of agency theory assumes all parties are self interested, risk adverse, have bounded rationality, that conflicts exist among the parties, and that information about the system is a commodity with a cost (Eisenhardt 1989). The formal literature cites two types of agency problems: moral hazard, generally characterized as the shirking agent, and adverse selection, generally characterized as an unfortunate selection of an agent arising from the agent's misrepresentation of their abilities (Arrow 1985, Eisenhardt 1989). In both cases, the problem occurs when the principal cannot easily or inexpensively verify the information about the agent or the agent's actions (Eisenhardt 1989).

Four broad agency theory applications can be identified based on different settings and elements. Agency in law predates agency theory and has a long legal tradition including liabilities and criteria for determining agency (Shapiro 2005). Ross (1973) is credited with describing agency theory in economics where it is often labeled principal-agent theory with accompanying mathematical models. Attention is focused on "contract problems" related to bargaining, incentives and monitoring agent performance (Ross 1973, Shapiro 2005, Lane 2009). Barry Mitnick proposed a political science and sociological version of agency theory focused on control of agents, sanctions and agency cost (Moe 1984, Bowie and Freeman 1992, Shapiro 2005). Moe (1984) notes political science's greater reliance on the economic formulations which fostered development of rational choice theory. Early on, White (1985) noted what he called the "social plumbing" agency theory provided in social settings. Using Mitnick's formulation of agency theory expanded the application into social settings using norms, social controls, networks and professions (Mitnick 1992, Shapiro 2005). Agency theory has been adapted to widely varying circumstances: how resource distributions can be influenced (Carpenter and Feroz 2001); monitoring and sanctioning in organizational settings (Weimer 1995); incentives and agent responses in governmental reform (Dixit 2002, Frederickson and Smith 2003, Worsham and Gatrell 2005); and performance evaluation under uncertainty and risk sharing (Eisenhardt 1985).

Government contracting for services creates at least two different agency relationships: one between the voters (principals) and the bureaucracy (agent), and the second between the contractor (agent) and the bureaucracy (principal) (Kennedy and Malatesta 2010). It can be argued that, in government, many principal agent relationships are created simultaneously and, depending on the setting, network arrangements result. The existence of multiple principal and

agent roles for members of service provision networks has been described and agency theory applied as an analytical framework (Provan and Milward 2001).

Criticisms of agency theory have focused mostly on the self-interested individual aspect of the theory which ignores cooperative behaviors (Lambright 2009). Stewardship theory or relational contracting behaviors are invoked in situations where agents are not expected to be self-interested maximizes such as when non-profits under contract provide services related to their mission (Lambright 2009). Agency theory is also criticized as misunderstanding the conflicting interest problems created in multi-principal systems where the agents cannot opt out of acting for the many principals (Shapiro 2005). Ultimately agency theory's scope is limited to providing direction on how a principal can control its relationship with an agent in ways to promote goal alignment and reduce opportunistic behavior through monitoring, sanctions and incentives (Van Slyke 2009). It should be noted that the incentives, sanctions and monitoring posited in agency theory as controls are considered less effective than traditional structural controls of government agencies (Whitford 2002).

Reviewed literature synopsis.– This chapter reviews literature covering a range of topics which are revisited in the later chapters. Two general topic areas have been presented. The first covers literature related to the history and features of state wildlife management agencies. Included is a brief historical account of state wildlife agencies and selected topics that address institutional characteristics, policies and collaborative management. This literature establishes the unique, shared features of state wildlife agencies and some discussions of transition in agency policy and management. These characteristics are hypothesized to influence the use of third parties in state wildlife management programs.

The second area explored in this review includes devolution, accountability, legitimacy, and capacities related to use of contracts by government agencies. Included is an overview of agency theory which is employed as an analysis tool to explore relationships between wildlife agency staff, contractors and procurement staff. A summary of the limited literature describing state wildlife agencies use of contractors is also provided.

This study intends to begin to address the small volume of literature on state wildlife agency use of contracts by examining one wildlife agencies use of contracts, the relationship of contract use to employees and financial resources and changes in use of outside third parties in wildlife management. Additionally, the literature's suggestion that a wildlife institutional paradigm influences the use of outside parties is explored through interviews with parties directly engaged in wildlife contracting. This study focuses on contract use data and influences that underlie contract use decisions. Contracts for wildlife management services and grants are indication of collaborative management actions and are key to in engaging "outside" or third parties in state wildlife management programs.

3) METHODS

General

References to the use of contracts by state wildlife agencies and specific contract capacity references do not appear in the literature. The focus of this research is to explore a state wildlife agencies' use of outside parties to obtain services or actions directly supporting wildlife management objectives. The working assumption of this exploration is that state wildlife agencies engaging third parties to perform wildlife management functions will involve the exchange of money, materials, or grants of authority that results in a recorded contract. The contracts may have different names depending on the parties, type of arrangement, and other factors but all will share the characteristic of being recorded under rules prescribed by a state's fiscal management policies. Additionally it is assumed that recorded actions involving goods, materials, services, authorities or money will be maintained in the state accounting records as a commitment document which includes all contracts and purchase orders and are referred to collectively as contracts here. The accounting records established a point of departure for assessing how contracts are used in state wildlife agencies. The state's fiscal rules set the scope of the agreements reviewed. Accessing wildlife agency accounting records were anticipated to require agency agreement and the records were anticipated to differ based on the individual state, wildlife agency and state fiscal practices.

The focus on contract use and agency contracting capacity limited the sources of information to the state wildlife agencies themselves and potentially other agencies which might control or maintain accounting records. A limited number of individuals within a state wildlife agency were anticipated to have firsthand experience and knowledge with contracts, contract use patterns, contract management, and monitoring of contracts. This assumption is based on

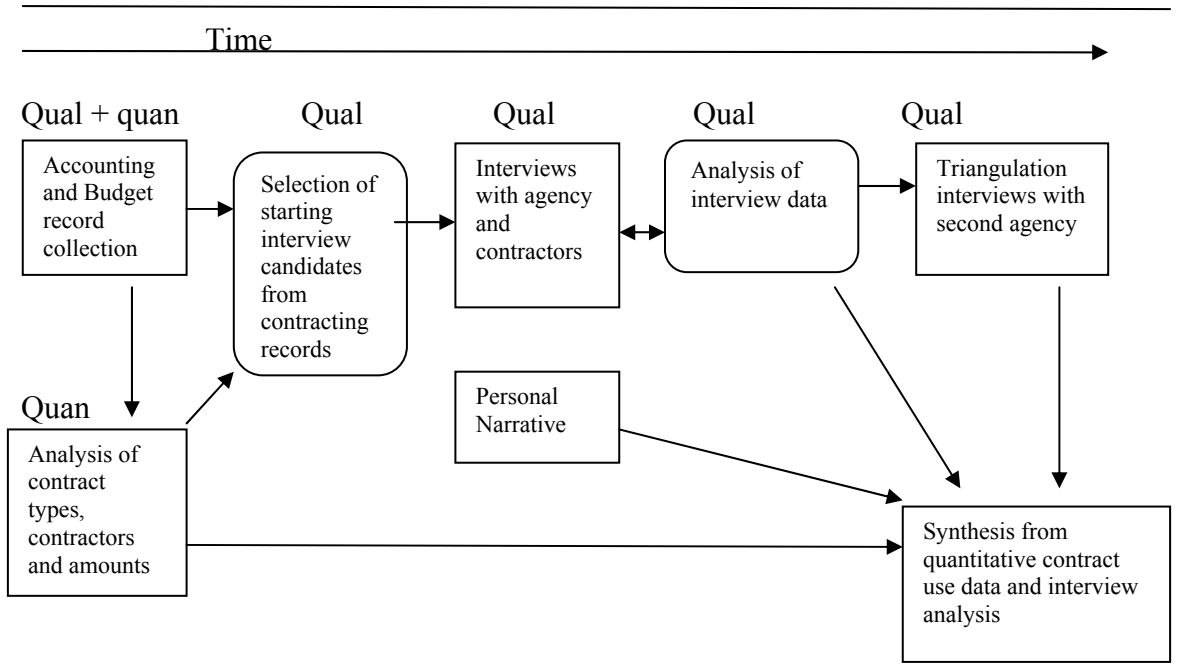
delegation of authorities to negotiate or approve contracts within organizations (see for example Controller 2009a, Controller 2010). The information regarding a contractors' experience with state wildlife agency contracts is limited to the specific contractors and was anticipated to vary based on the characteristics of the contracted tasks.

Publicly available accounting records for state wildlife agencies were expected to contain information on the identity of the contractors, information on the amount (monetary size) of the agreement, and accounting details specific to the agreement. Information about agency capacity was not available from the accounting records and required information from individual informants. The emergent nature of the data, the limited sources of relevant information coupled with the unknown distribution of agency data sources and contractors presents a significant data collection task when applied as a wide scale inquiry of the individual states. To reduce the scale of the data collection efforts, a sequential exploratory data collection strategy (Creswell 2009) coupled with a purposeful sampling and data collection approach (Teddlie and Yu 2007) was employed. Potential informants were not randomly distributed within the organizations due to the patterns of delegation of authority. Broadly described, the data collection steps employed are as follows:

1. Selection of two state wildlife agencies.
2. Obtain public records on budgets and contract information for the selected agencies.
3. Establish contact with employees reported in the records as contract managers.
4. Conduct interviews with selected agency contract managers.
5. Establish contacts with agency suggested contractors.
6. Conduct interviews with willing contractors.

The data types are expected to consist of accounting records and interview transcripts. The different data types require mixed qualitative and quantitative analysis methods. Accounting

records are expected to contain numeric data and textual data along with standardized codes. Agency employees and contractors were expected to supply verbal information via interviews and perhaps other data types such as printed records, reports or brochures. The sequential exploratory approach adopted uses the data from the quantitative analysis of the accounting records to inform the qualitative phase. The stages are graphically depicted in Figure 3.1.



Qual = Qualitative methods primary; quan = Quantitative methods secondary;
Quan = Quantitative methods primary

Figure 3. 1 Sequential exploratory data collection design per criteria in Creswell (2009).

Elements of the study plan dropped during implementation.– The original research proposal included an added step not depicted in Figure 3.1. This step anticipated the development and administration of a survey tool canvassing 48 state wildlife agencies and selected wildlife contractors on the themes developed from the two state wildlife agency cases. This portion of the research proposal was dropped when funding support for a survey was

unavailable. Complications with data availability from one state wildlife agency also added to the survey development cost concerns.

Units of analysis.– Data collection efforts focused on the CDOW and the WGFD. The selection of the Colorado and Wyoming wildlife management agencies was based on proximity to Colorado State University (which would allow for onsite interviews) and the author's prior employment with the CDOW. Past work experience provided a personal knowledge of state wildlife agencies in general but also specific knowledge of the CDOW and contractors in Colorado. The political and demographic characteristics of Colorado and Wyoming were expected to provide a comparison of state wildlife agency implementation of third party wildlife management. Agreements to participate were obtained from the CDOW and the WGFD (see Appendix 3.1). Each agency agreed to provide publicly available accounting information and allow access to employees for interviews. The agreement provided for employee choice in participation and did not mandate participation. Contractor contacts were based on interview content and participant recommendations. Participation by contractors was strictly voluntary.

Data Collection and Analysis

Formal contact was made with both CDOW and WGFD to establish desired employee contact procedures for each agency and request for at least 5 years of contract accounting records. The requested data are public records in both states. The request asked for electronic formats where available. Contract accounting records from Colorado were supplied as individual Microsoft Excel spreadsheets for fiscal years 1999-2010 (12 complete fiscal years). The data sets were created by using a standard system transaction report query of the Colorado Financial Records accounting system (COFRs). The data reported purchase orders and contracts attributed to the CDOW including interagency agreements and other contract-like transactions as required

by state fiscal rules. Generally state fiscal rules require "commitment documents" (i.e., purchase orders, contracts or similar instruments) when the purchases from an individual vendor/contractor equals or exceeds $5,000 in any single fiscal year (Controller 2009a).

In the case of the WGFD, the agency contact arranged a meeting with a financial section supervisor to address the contract records request. The meeting revealed that WGFD's ability to provide a five-year contract use or accounting record was not feasible due to a recent change in Wyoming's accounting software. The WGFD Assistant Director for financial services related that Wyoming's change in state accounting software disabled the older accounting software system and older records were archiving as printouts. WGFD did not retain printouts beyond the fiscal year close out. It was further reported that agency records might not be available as individual records as Wyoming elected to archive a printed record of the state complete financial record. It was suggested that a current fiscal year report could be created provided that completion could be delayed. Subsequent follow up request did not result in data sets comparable to the CDOW data. However, a limited data set for a single fiscal years professional service contracts was provided. The limited scope of the data set did not support a quantitative analysis but was used to make initial interview contacts. The limited WGFD contract data set shifted the plan of study to a single case study employing a smaller interview-based case for triangulation and confirmation purposes.

The CDOW contract data analysis was not as straight forward as this brief introduction would suggest or as was assumed at the planning and study outset. Analysis was complicated by the large number of entries, the accounting structure and obscure interpretation keys required interpret and transform the data for analysis. It should be noted that the transformation was a complex undertaking and relied in some cases on the investigators past experience with the states

accounting system and contracts. Without the experience, a reconstruction of the data set could differ from those presented here. To help the reader understand the transformation steps used to change the original accounting records into the database used for other analysis steps, Table 3.1 provides a listing of the main data transformation steps using the section headings following the table as guide to the data preparation and transformation steps applied.

Table 3. 1 Key to data transformation steps by subsection title.

Subsection Heading	Purpose	Actions Taken
Description of the data set	Review of Excel data sheets	Identification of data preparation needs and application sequence
Standardizing contractor names	Standardize and group contractors by name	Standardize names and add "interagency" to appropriate transactions
Separating the financial functions	Fracture the accounting data structure	Separate awards, payments and adjustments into separate data fields
The "M" codes	Determine action taken in modified transactions	Assign modified transactions to data fields
Creating the Access database	Create a single data set for analysis	Create the database structure, data import and quality control
Queries and PAWS Statistics 18	Data analysis	Query development and data analysis

Description of the data sets.– The CDOW accounting data contained data on the fiscal year, contract numbers, fiscal system coding and dollar amounts for each transaction related to an individual contract. Contractor identity was reliably included for non-state government vendors but was not included on all state interagency contracts. Descriptions and comments related to contract purposes or descriptions of action were not included in many cases. The data sets originated as standard system transaction report queries available within the COFRs system and the reports were captured as Excel spreadsheets. Request for definitions of codes used in the data, including purchase codes and classification codes were made simultaneous with the accounting data. The State of Colorado Procurement Manual (Controller 2010) was obtained

from the Colorado State Controller's Office web site (http://www.colorado.gov/cs/Satellite/DPA-SCO/DSCO/1249666995594) and a CDOW organizational unit procurement and account code list was obtained from the CDOW Planning and Budgeting staff. These code lists were used to group and categorize the accounting records for analysis.

The accounting data spreadsheets were examined to understand the data structure, potential data management needs and identify data interpretation issues. The examination revealed the need for care in the use and manipulation of the data sets. The data origin from an accounting system limited direct analytical actions. For example, summing the dollar amounts in one of the spreadsheets yields a sum of $0.00 due to the accounting reports design. A single contract may have multiple entries to report actions such as adjustments in the contract amount, multiple payments, changes in codes used, cancelation of all or parts of the contract, transfer of part or all of the contract to another fiscal year or other modifications.

The data sets also contain data entry changes as each record is entered into COFRs by a purchasing or accounting employee, who changed over the time. These changes appear as differences in data entry conventions such as differing spellings or abbreviations used for vendors' names (i.e. US Forest Service, Forest Service, and USDA Forest Service all refer to the same federal agency), and use of the description and memo fields. The sometimes missing vendor identification for state intergovernmental agreements previously mentioned is also related to different data entry personnel. A more difficult to resolve and significant data interpretation and analysis challenge arises from the account and funding code changes recorded in the data sets. The funding and account changes typically employed multiple transactions (reported as individual entries or records) with equal positive and negative values but with different codes used for accounts or fund types. Unfortunately most of these transactions do not have descriptors

or comments, however, a modification flag code indicates a change was made. Determination of contract expenditures required comparing and matching records flagged as being modified for amounts and funding codes to identify payments or contract amount modifications from those which were internal accounting code changes.

The data set is comprised of 79,361 records which mandated a database application to manage and manipulate the data set. Microsoft Access 2007 was selected and a trial import of a single fiscal year data set from the original Excel spreadsheet was used to verify the integrity of the data import and test reporting and analysis routines against a smaller data set. Trials of different algorithms to prepare the data set for analysis proved unreliable due to data characteristics previously noted and proved time consuming to verify appropriate processing. As a result, Excel was used to prepare each fiscal year's data set for analysis and the resulting prepared data set was imported into Access. Data preparation steps included identifying vendor naming inconsistencies or variations, identifying fiscal year roll forwards, separating contract increases and payments from account code changes, identifying contract terminations and categorizing coding change impact.

Standardizing vendor names.– Data set preparation began by creating copies of the original accounting reports and archiving the originals as reference sets. Working copies of each fiscal year were sorted by vendor name and contract number. The sorted data was scanned for varying naming conventions. Vendor naming was standardized in cases indicating data entry differences related to abbreviations, spellings, name shortening or key stroke errors. To illustrate the previously mentioned identification differences, the variations on the U. S. Forest Service was standardized as U.S. Forest Service while Colo State University, Colorado State University and CSU were standardized as Colorado State University. Contract entries that contained no

vendor name but coded as interagency contracts or the comment field identified the contracts as interagency agreements were given a vendor name of "Intergovernmental". In cases where the actual agency could be identified, the agency name was entered.

Separating the financial functions.– The spreadsheets were sorted on the comment field and all transactions that were noted as "rolled in", "roll forward" or "lapsed" or "contract closed" or similar descriptors were located. The dollar amounts reported in the "Amount" cell for these entries were moved into one of the three added spreadsheet fields named "Rolled In", "Rolled Out" and "Lapsed". The individual spreadsheets were also sorted on the transaction type field and contract number. Values reported as payment vouchers were moved to a new "PV Amount" field. If the code was for an intergovernmental payment, the value was moved to an "IA Expended" cell.

The "M" codes.– Addressing the funding changes within the data sets was a larger challenge both within the fiscal years and between fiscal years due to multi-year contracts and contract roll forwards into a future fiscal year. The task required a fiscal year by fiscal year evaluation of the suspect contracts. The individual spreadsheets were sorted by contract number and transaction date. Each contract entry was scanned for a "M" code in the modification flag data field. The "M" code indicated that the entry was modified by the accounts and control staff. "M" codes identify several potential actions including roll forwards, roll ins, fund changes, partial payments, reductions to the contract or the payment of the contract by supervising accountants outside of the CDOW. The range of actions or combination of actions in a single entry made interpretation of "M" coded transactions by using a programming algorithm unreliable. A manual review and classification was applied to the data sorted by contract number and transaction. Each contract with a modified flag was evaluated and categorized. Those

recording payments by accounting staff outside the CDOW had the value in the "Amount" cell moved to the 'PV Amount" cell thereby recording it as an expenditure. Rolled in amounts from prior fiscal years were left in the "Amount" cell and copied into the "Rolled In" cell indicating contracted amounts for that fiscal year and the multiple fiscal year link. Amounts identified as rolled out were moved to the "Rolled Out" cell identifying a movement of contract amounts to the next fiscal year.

Funding and administrative coding changes were identified by comparing the transaction date, identical dollar values and comparing the accompanying financial coding for changes. In cases identifying coding changes, no adjustments were made to the data set which maintained the contract value. Some entries contained information in the comments or description cells that provided guidance on the entry and eased classification. A limited subset of entries could not be classified based on the data available in the transaction record. Where the intent of the change could not be determined, no changes were made to the data set. Completion of these steps resulted in all fiscal year data spreadsheets appearing as depicted in Table 3.1 which displays sample data from fiscal year 2005 for illustration purposes.

Creating the Access database.– An Access database with a structure matching the spreadsheets (Table 3.1) was created and the data from each spreadsheet was sequentially imported by fiscal year. Verification of the import of all spreadsheet entries was monitored by the incremental increase in record numbers before and after each import. A visual inspection of the database following each spreadsheet import verified all database fields were populated. Running sums were used to confirm comparability of totals between the Excel and Access data sets as each fiscal year was added in Access. The completed database was subject to queries, reports and other actions to explore the data and format data for analysis. The original research

Table 3. 2 Data format of Excel and Access data files using sample data from fiscal year 2005.

Fiscal YR[1]	PURCHASE ORDER	VENDOR NAME	TRANSACTION	DATE	MOD	FUND	APP	ORG	PROG
2005	OEPBA05000000297	COLORADO STATE UNIVERSITY	PVPBAAV050000946	3/18/2005		410	50O	5780	7120
2005	OEPBA05000000297	COLORADO STATE UNIVERSITY	PVPBAAV050000946	3/18/2005		410	60O	6710	7550
2005	OEPBA05000000297	COLORADO STATE UNIVERSITY	OEPBA05000000297	5/25/2005	M	410	60O	6710	7550
2005	OEPBA05000000297	COLORADO STATE UNIVERSITY	OEPBA05000000297	6/1/2005	M	410	21O	2120	7550

(Continued from above)

OBJT	SO	GBL	Comment	DESCRIPTION	AMOUNT	Tran Type	IA expend	PV Amount	Rolled In	Rolled Out	Lapsed
4220		CASH		DIVISION OF WILDLIFE		PV		-$212.50			
4220		CASH		DIVISION OF WILDLIFE		PV		-$2,762.50			
4220		CASH			-$637.50	OE					
4220		CASH			-$212.50	OE					

[1] Fiscal YR= Fiscal Year, Purchase Order = Contract, agreement or purchase order number, Vendor Name = Contractor, Transaction = Individual transaction identification number, Date = Date transaction entered, MOD = Modified entry, Fund = Agency fund identification, APP = Appropriation identification, ORG = Agency organizational unit identification, PROG = Program identification number, OBJT = Code identifying purchase type, SO = Sub-object code used to further identify purchase type (applies to only select object codes), GBL = General budget ledger identification, Comment = Comment field, Description = Contract or transaction descriptors, Amount = amount encumbered by contract or modifications to the encumbered amount, Tran Type = transaction type code, IA expended = Interagency agreement payment amount, PV Amount = Payments made, Rolled In = Contract amounts rolled forward into this fiscal year from previous fiscal years, Rolled Out = Contract amounts rolled forward into the next fiscal year, and Lapsed = Encumbered amount remaining unexpended at the end of a contract and subtracted to make the encumbered amount equal to $0.00.

proposal suggested the comment and description fields would be useful for thematic analysis (Braun and Clark 2006, Grbich 2007) which proved to be an erroneous assumption. The basis for the proposal was the official description of the purpose of these fields. Actual use of the fields did not match the actual use. This analysis step was abandoned after examination of the data set revealed sporadic, inconsistent use of the fields with little data about the purpose or use of the contract itself.

Queries and PAWS Statistics 18.– Queries of the database were used to explore and develop understandings of the content and refine queries used to summarize and consolidate data for analysis. Data intended for statistical analysis were saved as Excel spreadsheets for import into SPSS, Inc.'s PASW Statistics 18 analysis software. Excel was used to visually review and standardize the format of data (variable names, spacing etc), combine query results and in some cases create new logical or calculated variables prior to import into PASW 18. Spreadsheets were imported into PASW 18 and all data sets were visually compared prior to analysis.

CDOW appropriations, employee numbers and total expenditure data.– Legislative reports detailing appropriations and expenditures were obtained for all fiscal years in the accounting records plus an additional fiscal year prior and post those in the data set (Joint Budget Committee 1998; 1999; 2000; 2001; 2002; 2003; 2004; 2005; 2006; 2007; 2008; 2009; 2010; 2011). The reports for fiscal years 2002 through 2011 were obtained from the Colorado Legislatures Joint Budget Committee Staff Reports web page: http://www.state.co.us/gov_dir/leg_dir/jbc/apprepts.htm. Reports for fiscal years prior to 2002 were not available electronically and were made available by the CDOW or the Colorado Department of Natural Resources (CDNR). The appropriation reports provide summaries of the state's official budgets in dollars and employees numbers (reported as full time equivalents or

FTE) for all Colorado state government agencies. Generally each report contains an agencies prior fiscal year expenditures and FTE use. The reports also contain summaries of adjustments to the appropriations that occur due to legislative action, vetoes, grant changes, federal program changes, administrative action or other actions. The collection of reports for the fiscal years before and after the contract data timeframe provided a record of the appropriations and expenditure data covering the contract data fiscal years. Appropriations and expenditures of state and federal funds are consistently reported across the time period but other report elements were modified or eliminated. Reporting procedures for full time equivalents (FTE) allocations have changed over time, however additional data on FTE use from the CDOW allowed calculation of comparable FTE data for the period. Data from the appropriation reports were entered into Excel for further analysis and importing into PASW 18. The CDOW provided copies of its zero-based budget request and supporting budget schedules, the agency's formal budget request submitted to the Colorado Legislature's Joint Budget Committee for fiscal years 2002 through 2010 (Colorado Division of Wildlife 2000; 2001; 2002; 2003; 2004; 2005; 2006; 2007; 2008). Prior to fiscal year 2002, these budget documents were not required and a comparable data set was not available. Printed copies of the CDOW portion of the budget request schedules and the Joint Budget Committee's standardized forms covering the 2000 through 2010 fiscal year budget requests were also made available by the CDOW Budgeting and Planning staff. The data in the budget schedules is the same as in the zero-based budget request but presented in a summarized structure. As with the Joint Budget Committee appropriations reports, there are variations in the format and some data elements over the time period. These reports were used to compare and cross check the spreadsheet data from the zero-based budget request.

Wyoming Game and Fish Department contracting data.– WGFD was unable to supply fiscal year accounting data similar in scope or content to the CDOW data. A list of contracts described as "professional services" for fiscal year 2010 was provided. The data set, in an Excel format, included vendor names, object coding, contract numbers, descriptions, amounts and information on the organizational units managing the contracts (Frank 2011). The contract data was described as a professional services subset of contracts used by the WGFD during fiscal year 2010. How this abbreviated data set might be compared or characterize to the 2010 CDOW data was not clear. Both data sets contain categories of contract services identified as "professional services". The descriptors of contract codes provided by the WGFD suggest that the professional services classification shares some common elements with a similarly name category used by the CDOW. However, differences in the official category descriptions questioned the extent of comparability and excluded direct comparison of the WGFD fiscal 2010 data to the CDOW data. Lacking comparable data sets precluded development of a case analysis of contracts and budgets of the WGFD as originally planned. The WGFD case was modified into a small confirmatory case using the 2010 WGFD data set to identify contract managers as initial interview contacts.

Interview procedures.– The interview process was similar in both the WGFD and CDOW. The process began with a review of the accounting data to establish the collaborative management contract users within each agency. High volume users were identified and interview contacts arranged with the assistance of the CDOW and WGFD contacts. Request for interviews were made directly with the contract administrators identified in the accounting data. Contacts followed the Colorado State University Social, Behavioral & Education Research Protocol #09-1432H. Potential informants were contacted by phone and the purpose of the contact and the research project explained. Each was asked if they wished to participate. If the potential

informant agreed to an interview, the interview process was described, a time and location set, and a letter of introduction along with a copy of a formal consent agreement was provided electronically. At the agreed time and location the informant was contacted and the introduction materials and research description were covered verbally. No potential informants withdrew following the initial verbal description which was followed by review and completion of the informed consent agreement. After completion of the consent agreement, the interview began.

Initial interviews started with CDOW staff. Identification of additional informants was incorporated into the interview through request for suggestions on important agency or contractor contacts. The request for suggested contacts follows a network or snowball sampling process (Teddlie and Yu 2007) to identify key informants. The WGFD selection process was similar.

The interview format was semi-structured and conversational (Patton 2002b, Glesne 2006). Each interview consisted of an introduction, acknowledgement of the confidentiality and consent agreements, including agreement to recording, transcript production and possible follow up contact. None declined the recording or production of a transcript. Two participants declined either the receipt of a review transcript or interest in follow up contact. Prior to the interview start a brief description of the interview process and an outline of the interview scope were provided. The verbal outline gave noticed that they would be asked to verify their consent to participate, the organization they worked for and a brief description of their responsibilities. Upon completing this interview initiation procedure, the recorder was started and the interview proceeded using open-ended "how" and "why" questions (Yin 1998, Patton 2002a, Glesne 2006) to explore contract use, experiences, attitudes, monitoring, and relationships with the contractors. Themes that emerged from the initial interviews were explored as part of later interviews to

develop a clearer understanding of emerging themes and provide triangulation on the themes and concepts (Decrop 1999, Charmaz 2005).

All interviews were voice recorded using a Sony digital recorder. The digital files were imported into Sony's Digital Voice Recorder software and verbatim transcriptions produced using MS Word. Following the research protocol, individuals named in the interview were identified by codes in the transcripts. Exceptions were in cases where the individual was a public official and their name was integral to the context, as in a reference to the state's governor. Codes used in the transcript were created by using the state U. S. Postal Service state abbreviation and a sequential number corresponding to sequence the individual was contacted or appeared in the interview transcripts (e.g. CO-01). The code for an individual was used in all subsequent transcripts and materials where the individual was referenced. A linked list of codes and subjects' names and contact information was created and secured as described in research protocol. The contact data was used to communicate, respond to inquiries and facilitate member checking (Yin 1994, Creswell 2009).

Interview analysis.– Interview transcript management and analysis followed a grounded theory like approach described in several different research traditions (Strauss and Corbin 1990, Charmaz 2005, Fendt and Sachs 2008). Interviews were transcribed and sent for member checking if consent was provided. Member checked transcripts were imported into QSR International's NVivo 9 software for review and coding. Grounded theory coding approaches were used to code and build comparisons of the data (Charmaz 2005, Fendt and Sachs 2008). Initial coding was unstructured and developed from the interview content (Bazeley 2007). As coding progressed, axial type coding was applied (Strauss and Corbin 1990). As additional

analysis approaches, a structured agency theory and institutional theory based tree coding scheme was applied to the open coded transcripts (Bazeley 2007).

Personal narrative.– The researcher's past CDOW employment may have improved or complicated data collection and interpretation. To address past experiences and locate the researcher's position and frame of mind, a personal narrative (Rhoads 2003, Nash 2004, Wall 2006) was developed along with the interviews. Auto-ethnographic techniques (Chang 2008) were employed to focus the personal narrative on the researcher's past experiences in his wildlife management career and compare recollections and reflections on service contracting in three state wildlife agencies. The narrative covers similar topics asked in the interviews and uses a loose chronological structure with reflective comments relevant to each part of the narrative.

Case study development

The case study construction contemplated during the research design phase called for two exploratory case studies based on contracting records and interviews. The cases were expected to provide the basis to construct a survey of all 50 state wildlife agencies. As previously noted, the single year, limited contract data set provided by the WGFD resulted in reconfiguring plans for replicated cases studies into a single case with a small confirmatory case. Lack of research support funds necessary to develop, validate and conduct a survey of all state wildlife agencies eliminated the survey elements. The resulting modified case study design is best characterized as an exploratory (revelatory, in Yin's terms), single case design (Yin 2003; 2009) compatible with hypothesis generation rather than theory testing (Levy 2008, Seawright and Gerring 2008). The Colorado case uses the contract accounting data, budgetary data and interviews as the data sources.

A total of 23 interviews were conducted in Colorado with representation from the following groups (number of interviews per group in parenthesizes): agencies administering CDOW contracting (3), CDOW field staff (4), CDOW program staff (11), for-profit contractors (2), non-profit contractors (3). The key areas explored in the interviews were:

1. How extensively are contracts used for biological or habitat objectives?
2. Why are contractors used?
3. How do the participants describe the agency-contractor relationship?
4. To what extent were capacity and boundary management issues identified?
5. How does the agency respond to capacity and boundary concerns?

A smaller interview-only case was developed from interviews with four WGFD program staff. The purpose was to compare elements or themes developed in Colorado and provide insight on the extent the CDOW case might be representative or idiosyncratic (Yin 1998, Decrop 1999). In the Wyoming case, contracting data was limited in amount and scope. The limited accounting data set was not used in comparison or construction of the case study. The two initial interviews were purposely selected from the contract administrators listed in the WGFD 2010 provided accounting data. Selection of the two initial interviewees was based on the individuals' appearance in the accounting data as administering larger numbers of service contracts. Two additional interviews from referrals were conducted. Attempts to arrange additional interviews proved unsuccessful within the available timeframe.

Ethical Considerations

This research involved interviewing individuals from different organizations and was reviewed and approved under provisions of research involving human subjects under the "expedited review" process of the CSU Research Integrity and Compliance Review Office

(website http://web.research.colostate.edu/ricro/default.aspx assessed on September 17, 2009) prior to data collection. The Colorado State University's Institutional Review Board (IRB) application for review of the research plan and a proposed introduction letter were submitted in October 2009. Initial review resulted in the addition of a formal participant consent form and CDOW and WGFD participation letters (see Appendix 3.1). The amended proposal was approved as #09-1432H in November 2009 and remained an approved protocol until November 2012. Confidentiality and record management requirements remain in force under this protocol.

Limitations

This research makes the methodological choice to measure and analysis collaboration using contract records for selected types of contracts. This choice uses the number of contracts and dollars expended as measures of collaborative management. These measures do not consider other actions that a state wildlife agency might employ to support collaborative management including non-monetary support and employee time. Additionally the categorization of the contract data may not be fully equivalent to collaborative management contracts. The data set does not support an assessment of collaborative components or delegated type task. While the contract data provides a year to year comparison of contract volume, expenditures and categories used as a measure of collaborative management, the data is also understood to contain an unknown number of contracts that contain delegated elements.

This research relies on the assumed willingness of the wildlife agencies and their contractors to cooperate with the research project by providing data and employees for interviews. As previously noted, the agencies were supportive of the project but other limits interfered with data availability and some individuals chose not to participate. All agency interviews were voluntary and assume the willingness, openness and truthfulness of the

informants. Similarly, the contractors interviewed were assumed to be willing participants who were open and truthful. Reliance on interview data is subject to the general limitations of bias created by poorly constructed questions, inaccuracies in recall, reflexivity by the interviewee's to give interviewer what is wanted, and response bias (Yin 1994, Creswell 2009).

Six specific limitations are identified in methods used in this research project. First, the contract use information is from an accounting information system built on a transaction, rule-based, accounting metaphor which does not provide information on content, objectives or outcomes of the contracts it records. Second, collection of interview data via a network/snowball sampling regime could miss outlying cases or contrary data. Third, contractors or their employees may be inclined to omit or limit what they may believe to be uncomplimentary comments and thereby limit development of the understanding of the contract environment. Fourth, the researcher has limited knowledge of the WGFD and is reliant on participants and the official agency liaison for explanations and clarifications of agency specific content. Fifth, the researcher's past employment and participation in contracting could introduce unrecognized bias into the analysis or interpretation. Sixth, the restructuring of the research project into a single case study and a small confirmative case does not provide a replicated case which limits assessment of external validity (Grbich 2007, Yin 2009).

4) PERSONAL NARRATIVE

A postmodernist? I don't think so. Nope, I'm a trained and certified wildlife biologist who has spent many years supervising biologists, wildlife law enforcement agents, and various specialists, engineers and others as an administrator of state wildlife programs. One thing I know; being a wildlife biologist doesn't generally provide room for a lot of alternate world views. As a former state wildlife agency manager and administrator, I don't think many employees of state wildlife management agencies would say their work could be interpreted as post-modern. Yeah, I have called it other things, but postmodern wasn't on the list. I've also been called a lot of names while engaged in wildlife work and postmodern isn't in that list either!

Yet, I have been accused of applying what I would call a pragmatic-relativistic approach by some who are stronger adherents of wildlife professional orthodoxy. In many cases I tend to think that what something looks like depends on where you're standing. But not being a poster child for what professional norms suggest a real wildlife biologist is or does just makes me a poor example, not a postmodernist. Right? After all, I'm not going around reinterpreting events using critical theory or constructing different outcomes from a given set of facts. No, what I mean is there are three sides to every story: yours, mine and the cold hard facts, to paraphrase Don Henley. Still, getting the "facts" on paper is still an important task! Or, as I have often advised staff, "he who writes history makes history". I also regret, as I move forward with this narrative, some who would provide the "your" version of the content are no longer among us. It's a loss that I feel more acutely as I sit and compose this awkward and what strikes me as a somewhat embarrassing chapter. And so here I am!

What I am attempting with this effort is often labeled a personal or scholarly narrative (Nash 2004). These types of efforts are routinely described in qualitative methods scholarship as

a postmodern application based in ethnographic theory. A personal narrative did not come to mind during early conversations with my advisor. Rather, discussions about how I might be influenced by or deal with my background and experiences were straight forward discussions of disclosure and guarding against bias. Let me be blunt. My history, this research and even some of the data discussed in other chapters are directly linked. In fact, the relationship of agency policy to my experiences was a significant rationale in why I started this degree quest. Within the accounting data used in this study, traces of my decisions and actions are preserved and now are a part of this project. I look at these records and consider the cold accounting system data in light of the missing discussions, arguments and other influences leading to the contracts. Who I was in the agency and what I knew about the contracting and accounting systems also played a part in obtaining the wildlife agencies support and participation in this project.

Early on, I thought that maybe a longer "thank you" acknowledgment section, or perhaps some sort of curriculum vitae, could serve as an adequate disclosure. That would be an easy and safe way to deal with disclosure, I thought. You know the drill. Blah blah degree from here, worked there, so on and so forth. But the relationship to the data and interview participants nagged me. Could I separate how I looked at wildlife management, the people interviewed and the data from my past? Maybe it was really just a big help in making sense of the data and wasn't a problem. Yet the more I considered my role in this project, the more a simple "Hi, I'm not the standard Ph.D. student. I have the following work history in state wildlife agencies" type disclosure did not seem adequate. Exposure to current thought in qualitative research methods only served to doom the simple CV disclosure and seemed to work against the idea that my past was only positive aid to the interpretation of state wildlife agency contracting and capacities.

The idea to use a personal narrative was sparked during a discussion of contested roles and narratives in ethnographic work. A grad student discussing his trials in keeping the roles of student and teacher clearly framed as he played both roles within the same setting led to a discussion of narratives as both social constructions and performance (Atkinson and Delamont 2006) and how personal stories are used in research (Fraser 2004). Somewhere in this wide-ranging discussion, the use of one's own personal story to promote understanding (Rhoads 2003) was added. Pragmatically here was a way to deal with my presence in the data set and as the principal in an analysis role.

Personal narrative sounded like a good way to move beyond a CV with the added benefit of being a "scholarly" way to address my past experience. I proposed a narrative as a solution to the question of disclosure. That led to the practical problem of how to do one and not look too stupid in the process. After all, this Ph.D. process was a test of the potentially worthy and looking bad didn't strike me as a good option. The personal narrative was counter to my interpretation of the wildlife profession's continuing efforts to develop greater acceptance as a rigorous, science based discipline and moving away from "less rigorous" approaches. I began to wonder how a personal narrative would be received in natural resource studies. I mean, look at the natural resource literature and you don't see many articles based on ethnographic methods! Funny how quickly a solution becomes the next problem. I've always been working on the not-looking-too-stupid part so at least that was not a new revelation or task.

I started looking at what I could find on the use of personal narratives as disclosure approaches. One can find a variety of material, but what becomes clear is that the narrative is more than a disclosure. Personal narrations focus on selected topics that go beyond disclosure and into revelation (Rhoads 2003, Ellis 2004, Nash 2004, Wall 2006, Chang 2008). Not only do

they reveal what is said, but also what is felt to be important, construct of the past, affiliations and other revelations. What I think I am doing is revealing how I know about contracts and my experiences in the arena. What you get depends on where you're sitting.

The back story.– A Southern kid living next to his grandparents' dirt farm (defined as cows, vegetables and a day job to support it) who decides in 9th grade that he wants to be a wildlife biologist rather than a mechanical engineer. The engineering thing was because I liked tinkering with and building cars and still do. It's not that I had a real good picture of what a wildlife biologist did, but that's what I decided I wanted to do for the "rest of my life". Like the ongoing joke in the wildlife profession about what one visualizes the wildlife professional doing (handling animals, planting habitat, etc.) and what one really does (reports and public meetings), I had my own romanticized vision of what being a professional wildlife biologist was all about.

I received encouragement from an information and education guy in the local game and fish office as well as from a federal warden stationed in a nearby town. Regrettably, I can't recall their names as I write this. Time is cruel that way and is a limitation to keep in mind as you read this. I got what turned out to be realistic advice from a second cousin who worked as a biologist for the game and fish. His advice was, "If you want to hunt and fish a lot, be a doctor or lawyer or such, because a biologist's job isn't about that." He also outlined how in fact, you tend to work the most when it is the best time to hunt or fish and being a biologist meant spending a large amount of the time dealing with people, both co-workers and the public, plus the paperwork. Undeterred, I earned a bachelor's degree in wildlife biology from Utah State University in 1972. This is the point where the focus shifts to experiences with and reflection on contracting and wildlife management.

Contract experience.– The attempt to provide a narrative that has context and insight into the use of wildlife contracting raised a challenge about how to portray recalled experiences. Vignettes recounting specific instances or themes focused on specific topics or points came to mind. Vignettes without some framing would lose the anchors of time which are important to the topic. The concepts of governance and new public management are tied to specific timeframes in public administration thought and would also have a temporal relationship to contracting and wildlife management. So, consider the following text as a kind of interview transcript. A response to the unseen questions that ask: What type of work experiences did you have with state wildlife agencies? How did the work environment and attitudes of the agencies compare? How were contractors or contracts used to accomplish your work? And what reflections do you have on contracts, contracting capacities and challenges in using contracts?

The narrative flow is from my earliest experiences forward through my career. It is very much a postmodernist construction when you consider it is my recollection and interpretation, which is more impressionistic than empirical, particularly the earlier parts. My effort is to reflect the settings, rationales, capacities and concerns as I recall and understood them. It is not to develop case studies of the agencies or any particular action. I will begin the wildlife agency experiences with one observation. As with many things, ironic elements seem to appear when one takes time to reflect over longer time frames. Here I sit today, writing up parts of a project that explores state wildlife agencies and their use of contracts and, ironically, my narrative kicks off with my first paying job as a contract biologist for a state wildlife agency. What are the odds?

The on-ramp to my career looks like what was common to me and a number of my fellow graduates; that is, having a wildlife degree and a wildlife biologist's job in 1972 was not synonymous. Probably is the same today. I had a barely adequate draft number so military

conscription was no longer a given. Job rejection notices get discouraging over time, but you keep trying, looking for the job opportunities you can find which are largely government agency jobs or grad school project money. There weren't job postings in private industry. It looked more and more like I was going to be managing a heavy equipment parts house in Costa Rica that my dad had in line for me as a plan B to raise money for grad school.

I happened to see a short notice show up on my advisor's bulletin board a few weeks before graduation. The notice was that the West Virginia Division of Wildlife (WVDW) was accepting applications for short term researcher positions. They were deciding who to accept in a matter of days and said to air mail support documents. I was thinking it was a position in their research unit. As it turned out, West Virginia did not have a position and was not offering one. They couldn't get approval for FTEs (full time equivalents or permanent positions) from the legislature. WVDW had decided the research work was a priority and could be done by short term "contract positions". They had engaged West Virginia University as a partner to help finesse a contract approach through the state personnel department which bypassed the position requirements and provided joint management of the research.

The short story is I signed an agreement to conduct a white-tailed deer research project. I recall that three other contract research assistants were signed around the same time. I also applied for admission to West Virginia University with the WVDW's encouragement. My contract with the WVDW ended in June of 1974 and I fulfilled my wildlife biology master's degree requirements in wildlife biology in December 1974. Time has erased many of the details—like how I got paid and all those kinds of administrative matters—but not the memorable two years with a cast of characters whom I recall fondly, count a friends and appreciate to this day.

The end of the contract signaled the beginning of another job search with applications, resumes and all the other trappings. Almost nine months passed from the contract's end until I got a call that I had been selected to fill an Assistant District Biologist position with the WVDW. Thinking about this period and my time with WVDW, it strikes me that I cannot recall contracts again being used for research or other biology type projects during my employment with WVDW. I don't know why. Perhaps the restrictions on hiring loosened, although I don't recall a surge in hiring. Rather a few positions were added over time. The assistant position I was hired into was created from an existing position for example. Perhaps administrative policy changed such that those types of contracts were no longer available, or perhaps WVDW was not satisfied with the results. I do recall there was some unhappiness in the research section with the delay in completion of one of the contract research projects. The unhappiness was related to the contractor not completing the documentation at the end of the contract. WVDW really had no way to enforce the production of a report as I recall the contract terms. Beyond not getting the final report in a timely fashion, I think this was an issue because, and my recall is a bit sketchy, the research contracts were funded by the unexpected availability of federal aid funds. Since the contractor did not write the final reports, someone on the research staff had to do it. In any case, the circumstances leading to the research contracts may have been serendipitous convergence of events or was found to be problematic as with the completion reports. But then this may all be rumor, as by then I was working for the management branch, rather than research. Sharing of those sorts of troubles usually did not easily cross the research-management internal boundaries.

In the management side of WVDW, I spent some time as an Assistant District Biologist, applied for and was promoted to District Biologist, which was a supervisory position tied to a geographic area. As an observation, the WVDW was a tight-knit organization. The WVDW saw

itself as a professional organization and disputes and arguments were expected to be framed and handled professionally. Generally, behind the scenes discussions and negotiations settled conflicts so that the public presence of the organization was unified. On the whole, the feel was more supportive of the individual members and protective of the organization. The agency primarily managed a set of distributive policies using its best information and professional judgment. While organizations such as the Wildlife Federation, Trout Unlimited, Ducks Unlimited and the Wild Turkey Federation had chapters in the state, I recall only low-level involvement in wildlife management activities with some engagement in the regulatory issues. Ducks Unlimited and the Wild Turkey Federation provided the occasional set of transport boxes for relocation efforts, for example. Habitat development activities were small. For example small water developments were completed using Wild Turkey Federation funds and the projects were used by the local chapter for fund raising. Local groups like the Logan County Coon Hunters are memorable because of their testimony at regulation hearings, but these groups were not active outside of the regulatory arena, except in the case of the raccoon hunting club's persistence in wanting to import raccoons for release. The clubs were also politically active on trapping and use of dogs regulations. A defining feature of the WVDW was it was a relatively small wildlife agency that was financially dependent on federal assistance programs and the Sikes Act.

I didn't use contractors to perform inventories or create management plans. I don't recall other supervising biologists or the research section using contractors although that could have occurred. Although grants were used to cost share research activities through West Virginia University from time to time, they were often in conjunction with other grantors. Like all the management supervisors, I purchased commodities like post, concrete and, in a particularly flush year, a dump truck. Services like car repairs, outhouse pumping and swimming pool pump

repairs (which is another story) were routine. I did have the occasional small, hour-based contracts for earthmoving related to wetland development and repairs and the rental of a single engine aircraft for radio tracking bears. Mostly I recall that the budget did not have a lot of room for much beyond day-to-day payment of staff plus the operations and maintenance related to staff and a series of management areas. You were always on the lookout for resources that could be used as cost share with federal funds or federal work programs for habitat work on the management areas or to obtain extra manpower. If you could get the right grants, you hired recent wildlife grads to perform wildlife management tasks. Some of the wildlife grads transition through these programs on to permanent positions.

Various types of "agreements" between the state and corporate or other governmental agencies allowed WVDW to use private or government lands for public hunting and fishing. Generally WVDW was obligated to perform day-to-day management tasks while the other parties' involvement was providing a lease-hold to the state. Some management areas also had one or more sharecropping agreements with local farmers. These agreements allowed farming of selected parts of the wildlife areas in which a portion or "share" of the crop was left for wildlife use. The idea was to obtain a wildlife benefit without incurring the direct cost of farming the property.

Sharecropping administrative controls required the agricultural practice be described in approved management plans and annually approved by the supervising biologist by use of standardized agreements. The agreements were administered by the property technicians. Most sharecroppers preformed as expected and were largely problem free. Sharecroppers were often long-term contractors and were known and trusted by the property technicians. The weakness in the system was monitoring and, in cases of poor performance, enforcement by the property

managers. When a disagreement arose, most often there was no documentation of monitoring or estimates of the "shares" available. One of the more memorable cases, a seemingly small dispute about the location and approved practices demonstrated how poor monitoring and political engagement creates a poor and unpalatable mix. The inability to obtain the performance needed was ultimately resolved by allowing the agreement to expire and no longer offering sharecropping on that parcel of land as the politics of the situation overrode other concerns.

Looking back on the WVDW years, it seems to me that the agency largely attempted to do work internally. The research projects that required large amounts of manpower, telemetry for example, drew on research and management staff as needed. Contracting was largely restricted to commodity items. The contracts for heavy equipment, noted earlier, were targeted and the engineering elements of the wetland management were designed under federal assistance programs by the Soil Conservation Service (now Natural Resource Conservation Service, or NRCS). In a sense, the design work was a noncontract effort to obtain skills and abilities not available within the agency. Grants and contracts with West Virginia University were common through the research section. Management staff and individual professors at the university did cooperate on management projects, in informal ways. Management biologists responsible for districts that included National Forest worked with cooperative agreements for management under the Sikes Act. I don't know the extent of those efforts as National Forest lands did not occur in my district. Contract use was limited enough that the single purchasing officer for the WVDW handled the contract development while coordinating contract administration and monitoring with the field staff. I don't recall discussing third party wildlife service providers outside of the university and the Forest Service. I remember the time as one with simpler demands on the agency and an agency that had to rely on staff while getting by on limited funds.

Budgetary turmoil was once again underway in the WVDW heading into 1978 and in the midst of potential furloughs or layoffs, the Florida Game and Fresh Water Fish Commission (GFWFC) offered me a Regional Biologist position. I took the offer, though the decision to leave WVDW was not easy. It was not a hard economic decision, as the Florida position paid better, but the affinity for the WVDW and its staff was strong.

The culture and internal politics in the GFWFC came as a bigger surprise than my investigation of the agency led me to expect. West Virginia used a Department of Natural Resources model that placed law enforcement and other resource categories, such as forestry, into separate divisions. Florida's GFWFC was a constitutional agency and had functional divisions such as law enforcement, fish management and game management overlaid on a geographic-based regional manager system which reported independently and directly to the agency director. As a regional (supervising) biologist with a staff I essentially had two bosses. My boss in wildlife management signed my evaluations and was three steps removed from the director. The regional manager on the other had could talk to the director with a phone call. Making the political environment all that more tricky was a strong inter-divisional competition. Not unsurprisingly, the different divisions developed strong alliances and, depending on the personal proclivities of the regional manager, conflicts between the division supervisors and regional managers occurred. The regional managers often came out ahead. The regional biologist knew that.

The competitive atmosphere was abetted by the game management and fish management divisions being staffed largely by college grads while the law enforcement division was staffed with fewer college graduates and more individuals with law enforcement or military experience. Work hour rules for law enforcement personnel and legislative support of increased law

enforcement pay rates resulted in many law enforcement employees being paid more and working fewer hours that those in other divisions. In many cases the local wildlife organizations were vocally pro-law enforcement and were often lukewarm to critical of other wildlife program initiatives.

This environment proved to be a constant irritant. Supervisors had to be constantly on their game to avoid inflaming even small events or perceived slights while mediating the occasional divergent instructions from the Tallahassee staff and the regional managers. Most regional managers came from the law enforcement background and used a military style reporting relationship. Regional mangers spoke of an open approach to management, but at the point where biological staff advocated actions not supported by law enforcement, a rules and policy enforcement approach was the tool of choice. A good outcome from my time in Florida was the lessons in the art of reading internal political winds and the overt and covert deployment of power.

Contract wise, I had little opportunity with anything but commodities. The struggle in my short tenure was finding the funds needed to keep existing program staff and operations moving. The GFWFC, much like WVDW, had several agreements with large landowners to operate public hunting or fishing areas under varying requirements or restrictions. Several of these were large holdings, for example Green Swamp and Fish Eaten Creek Wildlife areas, but others were smaller, such as Shell Island shore bird refuge. In many of these arrangements, the GFWFC was a lease holder for the purposes of providing public access for hunting and fishing. Perhaps the most unusual of these arrangements was the Avon Park Air Force Bombing range program, which provided limited amounts of public hunting on an active Air Force bombing range albeit under a rigid set of requirements and access provisions. As an active bombing range during most

of the year, it provided a number of challenges to me and the staff who performed wetlands and uplands management. It's one of the few places I have been where armed hunters went through a military access point onto an active military base to hunt.

As an aside, simultaneous with my start with the GFWFC, the agency also started a nuisance alligator control program. Alligators were still under the Endangered Species Act umbrella, but were sufficiently prolific to cause public safety concerns and bad press, particularly accounts of attacks on humans. An agreement was reached with the US Fish and Wildlife Service for the GFWFC to establish a control (i.e. kill) program for alligators that met set threat criteria. The GFWFC hired or, in some cases, appointed existing employees as regional coordinators for the program. However, the agency decided not to dedicate current employees to the actual control work. Reportedly, this decision was reached because the law enforcement staff wanted to be relieved of the growing time demands and insufficient staff was available from the other divisions to cover the workload. The wildlife division did not have sufficient employees to assume the program without abandoning most other program objectives for example. The result was a hybrid arrangement of a regional coordinator, part time administrative staff and contract "trappers" engaged under a licensing type arrangement. Trappers were individuals who committed their time and equipment to pursue and kill specifically identified nuisance alligators. The trappers signed license agreements (contracts) with the GFWFC that outlined the operating procedures, requirements and considerations. The contracts required the trappers to be available to respond to agency permits to remove alligators at the direction of the coordinator, provide reports and skin the alligators and preserve the hides and, later, the meat for sale. The hides were collected by the GFWFC and sold at auction and the proceeds shared with the trappers.

In many ways, GFWFC used contracts like WVDW. The nuisance alligator program functioned and operated similarly to the sharecropping arrangements. Lease hold agreements were common and as were cooperative agreements between the University of Florida and the wildlife research unit. Operations funding was tight and the demand for staff was high. Outside interest groups were more active in Florida than in West Virginia, but the focus was mostly on regulations, law enforcement or demands that the GFWFC perform in some prescribed manner. At the time, the Big Cypress and Kissimmee River/Everglades restoration were politically active issues that attracted national and local interest group attention. I don't recall groups or private companies offering or soliciting wildlife related work, but the number of active non-governmental wildlife interest groups was greater than in West Virginia. There were consulting firms offering to perform environmental document preparation and evaluation and land trust were more active in Florida than West Virginia. Florida did have access to funds that were used to acquire lands which did engage land trust or species related interest in purchase decisions.

My ongoing effort to get back to the west was rewarded with a job offer by the Colorado Division of Wildlife (CDOW) in mid 1979. I knew a small handful of people working in Colorado from my undergraduate years at Utah State University. Beyond that I knew the agency was viewed by other state wildlife agencies as a top agency. CDOW had a widely recognized research unit and was an active participant in wildlife meetings with many of its upper staff in various leadership positions in The Wildlife Society (the wildlife management professional organization). I was hired as a program specialist, a position created as part of a reorganization effort by the CDOW director. The position I held was a new classification in the agency. My work unit was a new staff organization as well. It was exciting to sign on with CDOW and check off a personal goal of returning to the west!

I was amazed at the amount of resources—both employees and dollars—that were available compared to my cash and people starved days with WVDW or GFWFC. But the place was competitive, both for resources and professionally. The professional competitiveness applied internally and externally. Challenges to proposals or issues were common place, often with a 'we've tried that before' rejoinder. One had to "prove" themselves to have standing in issues discussions. Proof of worthiness at least in my case may have had a lot to do with being an outside hire directly into a desirable staff position. This is not to say the people in the agency were rude or unpleasant. Rather it seemed to me to be a learned behavior. The competitiveness showed up in other ways as well. At one point, an organizational consultant, working under the auspices of the Western Association of Fish and Wildlife Agencies, was conducting team building and organizational development exercises using a survey tool called Life Style Inventory (Lafferty 1989). The survey tool provided individual and agency profiles based on 12 general characteristics that are common to many organizational change efforts. The overall agency profile of the supervisory level and administrative level was described as competitive with a mix of judgmental and oppositional characteristics. The competitive results surprised few. The judgmental and oppositional elements, I felt, had roots in the law enforcement background of a large number of the individuals in the group surveyed. As with any new hire, an early task is learning the positional and acquired power of the individuals in the organization. It was clear early on that the main channels in the agency were big game, fisheries and the field operations.

The program specialist position I held did not have a budget and was a classic staff position. The intended purpose was to encourage development of state wildlife areas based on management models similar to other mid-western states. Missouri was often cited to me as an example of the desired property management outcomes. A committee impaneled by the director

had developed a property planning format for all state wildlife areas immediately prior to my tenure. However, planning was not mandated or incentivized nor was the planning format required or enforced by policy. The complexity of the plan format and lack of consequences for ignoring it sidelined most property planning. Additionally, aspiring for a mid-western small game property management model wasn't realistic for many Colorado state wildlife areas due to the lack of moisture and inadequate irrigation. State wildlife areas with fishing were better able to match management's objectives while big game properties were highly variable. There was also a mismatch between the stated objectives for the state wildlife areas, the existing funding and the willingness to invest the necessary funds to achieve the higher management objectives. On occasion, plans were completed and then dismissed during budgeting processes as too expensive and unrealistic. Ultimately agency administrators decided to place the management of the properties and the property technicians under the field operation supervisors. These individuals were responsible for law enforcement, public response and information and education. This effectively ended property management planning as contemplated at the time I was hired.

In the same time frame, some administrators also criticized other habitat based programs, such as the private land pheasant program as too expensive compared to what was being done in neighboring states. As one of my assignments, I was tasked with evaluating cost and recommended changes to the program. During this evaluation, several biologists, me included, were sent on a field tour of Nebraska by the agency administrators to "learn" how their roadside pheasant habitat program worked as a way to improve Colorado's program. The Nebraska Game, Fish and Parks, who put on the tour, wondered why we were interested in their program. Nebraska's habitat didn't look much different from Colorado's until you went far enough east to

be in more favorable moisture regimes. The trip reports did not change the attitude that the program was too costly and not meeting expectations. There were merits in the arguments about cost and benefits, but the interest to address then was not sufficient. The program was phased out and became remembered as yet another case of we tried it and it didn't work. Significant improvement to eastern plains grassland habitat would not make significant headway until the Federal Farm Bill's Conservation Reserve Program arrived a few years later.

I took away the understanding that there was a price point on some programs. I adjusted and began to do what I could to facilitate property management, encourage improved habitat management approaches and deal with a variety of assigned tasks (AKA, staff work). I was given other work details, such as the "forested lands book" project, or a bear and lion hunter report database and so on. One found out directly that some programs in CDOW enjoyed preferred status. The non-game and habitat programs were most often not as well resourced as the regional operations or the hunting and fishing programs. What the habitat management biologist wanted was staff to help with developing plans, inventory and background tasks supporting habitat and property development. What they got was temporary (six month) positions which were often tasked to draft the management plans. Most of the temporaries were recent wildlife graduates, often with limited direct experience in habitat management or planning who were trying to get experience and end up hired full time (sounds familiar). Interestingly, much later, in yet another iteration of property management planning, staffing was addressed by contracting with an engineering firm to develop plans.

In the initial property planning process, some approved property management plans did receive implementation funding. The funds were primarily capital construction funds. This worked in cases where the plans called for building impoundments, fences, access points,

irrigation facilities and the like, but this funding could not be used to maintain them. Maintenance cost came out of the operation funds allocated to the property manager. Capital funds also didn't work for recurring non-capital tasks such as plantings, control burns or similar activities. Those dollars had to come from the operating budgets. Added to the operational cost either cannibalized the budget of the property manager or depleted another organizational units operation as funds were transferred or request made to increase property operations. The limits in operational funds led to attempts at "creative contracting" or packaging projects in a way that a soil conservation district or the State Forest Service could bid on capital projects which also contained a substantially amount of ongoing management projects. The creative contracting experiments did not prove consistently successful. A new approach would be successful at first, but, when emulated elsewhere, state purchasing or the controller's office refused to approve them. Additionally the contract partners lost interest in long-term projects, particularly those with contract issues or ones that did not match their own agency's objectives and budgeting.

A new director came along in 1984 with a reorganization of the upper administrative structure of CDOW. After a bit of test-taking, internal scuffling about the test and who should be appointed, I was appointed the regional manager for the Southwest (SW) Region. This was not without internal discussion of one's professional credentials and, specifically in my case, lack of a law enforcement background. To boot, I was an outside hire, not a CSU grad and who knows what else. The regional manager position is at a level where the tides of internal and external politics washed back and forth with some regularity. But it was a great position, even with the included target on your back. One dilemma a regional manager faces are the demands by the agency and political overseers for uniformity and conformity to policy, while addressing local differences and implementation needs. One of the other regional managers summed up the

dilemma with the observation that "the role of senior management was to grant exceptions to general policies". The conformity versus implementation dichotomy would recur often in my tenure in the SW and play a large role in my movement to a different position.

One objective I had was strengthening the core management competencies and accountability of the supervisors in the SW region. I also wanted to maximize the region's flexibility through increased budgetary flexibility, focusing full-time employees into key areas while using temporary positions or other mechanisms as needed outside the core areas. FTEs (or the ability to hire someone) were highly prized and holding or getting additional FTEs were ongoing efforts. Total FTE numbers were controlled by the legislature and were distributed by agency administrators through the agency budget. The budgeting process was arranged so that a filled FTE was maintained and did not require the budgeting or justification. So if you had a filled FTE, the costs were handled for you. Only vacant FTE were subject to a budgeting process and potential reallocation. Under this system, all a cost center supervisor had to plan was the operating and capital equipment side of the budget, plus any request to fill or obtain new FTE. Temporary FTE positions could be funded from more sources than a full time FTE and I used a strategy of maintaining full time FTEs and increasing temporary FTE through the budget process. Effectively temporary FTE requests were privileged in the budget process while full time employee requests faced intense scrutiny and ultimately limited success. I maintained the agency "favored" or "expected" positions, i.e. the ones the agency would not let you change or reduce, such as District Wildlife Managers or Senior Wildlife Biologists, while adjusting temporary FTEs upward and employing some contract services.

I don't recall that there were many private companies or non-governmental groups that offered or where interested wildlife service type work at the time. My staff and I worked with

organizations like Water for Wildlife, National Wild Turkey Federation, DU, Colorado Wildlife Federation or Trout Unlimited but the groups were not soliciting or interested in performing contracted work for the agency during that time period. In fact, they expected the CDOW to do the work while they used projects as fundraising opportunities.

Without contractors, most short-term work tasks went to temporaries. There were some temporaries who had worked as temporary employees over a number of years (fifteen in one case I was familiar with). Contracting for wildlife related tasks did occur, but it often mimicked temporary employment. Generally it was an individual, often a recent wildlife graduate, who was placed on a temporary personal services contract to work on tasks similar to how temporary employees were used. If they were good and fit in, they could end up being switched to a temporary position and back and forth over multiple year periods. Some of these individuals ended up learning the agency sufficiently that they out-competed others when hiring exams were given ending up in a permanent position.

By way of an example of this type of contract from the 1980s and into the early 1990s, one of my staff and Denver support staff wanted the region to allocate a permanent FTE to hire a geographic information specialist (GIS). At that time, GIS had just begun to move from mainframe applications to local workstation applications. It was unclear the extent of the benefit to the region from allocating both a FTE and the cost of equipment given the uncertainties about the GIS software and benefits of local processing. A trial was arranged using a temporary position along with acquiring some equipment. A temporary was hired and as the temporary position was ending, the project goals had not been fully achieved but significant regional interest in the trial project was present. To keep the experiment in place, a temporary professional services contract was arranged using a local employment agency who hired the

individual effectively moving the project onto a contract. The cycle of temporary and contract repeated until a FTE and funds became available to make a full time position.

Contracting by the SW region, excluding commodity purchases, was used in three ways. Primarily, contracting was used to obtain expertise that was not available through agency staff. In addition to the GIS work described, I would include the examples of a contract with a pomologist and an economist to evaluate the consequences of deer and elk damage to fruit trees; contracts for stream habitat plans to obtain fluvial and stream bed morphology expertise; or small demonstration contracts on elk, deer and bear exclusion techniques aimed at testing different damage prevention techniques. Contracts for direct project management, specific expertise and access to other resources were the objectives in agreements with the State Forest Service for timber management and control burns, or with the State Engineers Office for water right analysis.

The second application of contracts was cooperative or collaborative agreements with other governmental partners for habitat management or public access. These agreements often had a variety of names and formats based on the partner. Habitat projects, for example, were variously named depending on the federal land management agency but all had similar scope of work descriptions. Interestingly, multi-party agreements were uncommon largely resulting from incompatible federal agency agreement formats. Instead, individual coordinated agreements were used that required external coordination. In the habitat agreements, the federal agencies managed and completed the projects according to mutually agreed plans. These projects were frequently but not solely cost-sharing projects. Projects with federal land management agencies totaled over several million dollars during my time in the region.

The third general uses of contracts were also habitat oriented but were not with a federal land management agency. The more unusual ones were agreements that governed relationships with the sovereign Southern Ute and Ute Mountain Ute tribes. CDOW ownership of trans-mountain water rights also created a variety of annual water exchanges, conservation pool and water management agreements to benefit wildlife habitat and stream or lake habitats. Sharecropping agreements were less commonly used on state wildlife areas in the SW Region than in other parts of the state. However, sharecropping agreements, predominantly grazing agreements, were used periodically for habitat management, public access exchanges or as tenancy conditions included in easement or property sale terms.

A less common, but specifically focused purpose of contracts was to avoid bureaucratic conflicts or conflicts in regulatory requirements between parties to projects. An example is a land exchange agreement between the U.S. Bureau of Reclamation, the Trust for Public Lands and the CDOW to replace ("exchange", as worded in the contract) lands that were condemned for a federal water development project on a state wildlife area. The state wildlife area lands were originally acquired using federal assistance and required the CDOW to replace the lands if they were "lost". However, the federal condemnation action provided only monetary compensation. State requirements did not allow the CDOW to hold the condemnation funds, making it impossible for the CDOW to comply with all the requirements associated with the land. Agreements were negotiated with the Trust for Public Lands and the Bureau of Reclamation, which allowed the CDOW to identify exchange lands and avoid the negative consequences arising from the condemnation actions. The agreement was drafted as a "land exchange" between the three parties; funded by the condemnation action proceeds and filed as part of the federal court condemnation action. This took some work by the region and Attorney General's Office to

devise an agreement all parties would sign. Without the cooperation of the Trust for Public Land and the Bureau of Reclamation, it would not have been possible to complete the "exchange" and keep the CDOW out of a diversion finding.

A final piece of the condemnation action adds an ironic twist to the collaborative atmosphere described. The lands subject to the condemnation were originally acquired by the CDOW with the assistance of The Nature Conservancy (TNC). A condensed summary of the acquisition starts with the landowner wanting to sell his entire holdings. CDOW did not have the funds or authority to directly purchase all of the lands. TNC brokered the sale by allowing CDOW to purchase the land in 3 transactions over 3 years from TNC. TNC inserted a clause into the deed requiring their approval of any changes in use or disposal of the land. As a result, TNC was a party to the condemnation and CDOW offered allow TNC to participate in selecting replacement lands and to include the restrictions on the replacement lands. TNC rejected the offer and asked for compensation and filed a competing compensation claim with the Federal Court and jeopardizing the replacement agreement. TNC did not wish to maintain its status on the replacement lands and instead wanted full control of another state wildlife area elsewhere in the state. CDOW reluctantly agreed, allowing the "exchange" agreement to be completed. While this agreement averted a much larger set of legal and fiscal difficulties for CDOW, the belief that TNC had betrayed the CDOW and was untrustworthy was widespread in the agency. Hard feelings and unwillingness to partner with TNC took a number of years to subside.

I saw this as evidence of a shift in outside group's delineation of boundaries between CDOW and their interest. TNC was making notice of the distance between its past roles and its new role and relationship with CDOW. I understood that TNC's action was focused on its own management and fund-raising objectives. These objectives were not incompatible, but there were

fewer direct overlaps. From the CDOW side, the results identified that objectives other than wildlife were now part of future partnership consideration and coercion was potentially a part of future NGO relationships. To many in the CDOW, this made TNC look like other contractors who manipulated the agreements to benefit themselves. This action increased my perception of the shifts in the way interest groups asserted their interest and were viewed by CDOW. The internal, privileged status enjoyed by some interest groups was eroding. The change in my attitude did influence a number of negotiations on future joint projects. "Avoid future TNC like problems" was added to the mental check list.

A few observations stand out from this time. I don't recall the presence or availability of contractors offering to contract the type of wildlife work CDOW was focused on. In fact, I more clearly recall having to look for potential contractors. Consulting firms with wildlife biologists on staff were around but were primarily engineering firms focused on environmental assessments or environmental impact statements. In the case of many of these firms, their work products ended up being reviewed by CDOW staff. In some cases there were issues with analysis. The disagreements were often minor, but they did not build CDOW staff confidence in using contracted biological services outside of university wildlife programs. The private biologists were viewed as being subservient to the clients rather than fully representing wildlife. My recall is that it was not until a SW Region field employee opted to resign and start a biological focused for profit consulting firm that a wildlife management focused contractor was available.

One group of entities the CDOW routinely looked to for biological expertise and services was colleges, Colorado State University (CSU) in particular. Some professors had long-running contract work with CDOW. Historically, cooperative agreements have been part of the CDOW research programs with the CSU Cooperative Wildlife Research Unit. Other research and

research-management projects have been contracted with different CSU departments. For example, the Department of Human Dimension in Natural Resources has been a partner and provided services in various studies and research projects. CSU contracts were most often administered by the research section or the directors' immediate staff. Regional projects for training or skill development were generally administered through these existing contracts rather by separate agreements.

During this mid 90's timeframe, the agency was being increasingly criticized by organized groups representing: local and state level hunting and fishing groups; state level groups interested in threatened or endangered wildlife; state level groups concerned with outdoor education; and other groups with specific wildlife-related programs or interest. The criticisms were broad and changed depending on what group was speaking. Classic examples from this period are the spring bear hunting, mountain lion and trapping controversies covered in other literature (see for example Gill 1996, Nie 2004a). During the early parts of the conflicts, staff complained that "the biology" was being ignored, professional advice was not sought, or political expediency was decisions rather than biological considerations. Those inside and outside of the agency did not think they were being heard and in some cases felt the CDOW was supporting inappropriate policies and/or favoring interests that should have little or no role in wildlife decisions. Typically consumptive user groups argued for politically conservative and status quo policies and for limiting CDOW spending on non-consumptive programs. Suggestions from some consumptive user groups were intended to minimize or marginalize the input of non-license buyers. The conflicting views and occasional bad manners further polarized the issues and the public. Internal management decisions began to be reviewed with new criteria focused

on determining if the decisions could withstand political review by members of the legislature allied with the different factions.

Interestingly, in the midst of all this, my office was picketed, in part because of a set of elk season recommendations. The protest made the state news services and I got to talk with state legislators and staff in the Department of Natural Resources. As one might expect, my peers had fun with this. None could recall a similar event in CDOW's history to that point. While the SW Region prided itself in being a leader and first to try out new ideas, this was unexpected and unwanted. In the end, the elk season recommendations remained, largely due to support from other hunting groups. During the same general time frame, the Colorado Trappers Association and United Sportsman's Council distributed bumper stickers that read "Colorado Division of Wildlife—The Evil Empire" as a way to voice their displeasure with the CDOW and the Wildlife Commission over actions on bears, trapping and threatened species management.

Consumptive groups in the hunting and fishing camps continued to fracture into more advocacy coalitions, sometimes reflecting interests which would not previously have been a specific wildlife interest. As an example, an all-terrain vehicle users group emerged to focus on use of these vehicles in hunting and fishing. The different interests within the general hunting or fishing groups sometimes fractured into specific entities supporting fishing with bait or barbless hooks only. The main point is the increase in the number of groups which defined themselves by a method of take like bow hunters or muzzleloaders or a species of interest like elk or mule deer. These interests pushed their "brand" and used it to position the groups in the regulatory and legislative arena. This diminished the voices of older generalist groups like the Colorado Wildlife Federation or the United Sportsman Council.

I would note that some wildlife interest groups did engage in wildlife management projects through volunteering to assist in projects or by "sponsoring" a project, which generally meant cost sharing on a habitat project or relocation effort. Often the organizations used these as tie-ins with fund raising. With many of these groups, one did not hear much except if they were involved in regulatory issues. During my time in the region, wildlife interest groups were rapidly evolving as money, technology and political success drove changes. Like-minded individuals found it easier to find and communicate with each other. Communication facilitated fund raising. Interest groups of all types began to focus on wildlife issues and outcomes not just locally but at state and federal levels. Money also bought groups new capacities, including legal resources and public relations support. Within Colorado, the Great Outdoors Colorado (GOCO) legislation played a significant role in strengthening and building capacity in "conservation" groups. GOCO started lottery money flowing to the CDOW and to other entities in the state for inventory or habitat protection projects. While there was an ongoing disagreement between the GOCO Board and the CDOW on the use of the so-called "wildlife quadrant" funds, the reality was that, to complete large projects, coalitions were required to compete for the large grants. GOCO's treatment of the funds as "grants" with specific targets also favored partnership-oriented projects. These partnerships generally did not extend beyond the project but did impact the working relationships of the CDOW. Land trust which had occasional projects in cooperation with the CDOW increased their attention on CDOW habitat protection interest to gain CDOW's participation and access to funds. Participation in GOCO projects also required additional different types of analysis to satisfy the GOCO Board and staff. The project analysis and approval requirements lead the land trust and other organizations to add staff or hire contractors.

CDOW found that its species conservation and habitat programs were being watched by a variety of interest groups hoping to add their project or become a partner.

Most managers in the CDOW recognized the tumult and change underway in the state's wildlife management environment. I don't think many recognized that the internal competition would become the field outside interests would plow and plant for yet another reorganization. The internal and external competition amplified the public's disagreements on wildlife management and then telegraphed to the state's political leaders. The Wildlife Commission and the CDOW undertook an update of the states strategic wildlife plan through an extensive public involvement effort. The update was completed after several delays and frustrations. The existing political managers and the Wildlife Commission decided that to address implementation of this new strategic plan, a performance audit was needed.

What emerged in 1994 was a performance audit and reorganization known as Management Review. Unlike previous reorganization efforts which were mostly internally driven and managed, this one was big, public and expensive. The Deloitte and Touche LLP consulting firm was contracted, lots of money spent, meetings and reviews conducted, interest groups engaged, and a couple of years invested in developing the audit and reorganization proposal. The agency got a new director a few months ahead of the final reorganization plan, which was presented to the Wildlife Commission in June of 1995 and subsequently adopted (Davis and King 1995). It took a few months of discussion before decisions on how the changes were to be implemented were settled. In May of 1996, I was formally told my job and much of the regional organization was either abolished or consolidated into other regions. My employment options were either move to a vacant position in Denver or exit state service. I chose to become the State Wildlife Manger for Habitat Programs in Denver.

One would think I'd be used to reorganizations at this point, given that they featured as turning points in my career at CDOW! This one was different. It is interesting to note that in a matter of a few years, the SW Region was reestablished. In the process I got into some hot water for commenting that it is easier to rearrange the deck chairs than it is to manage the ship. Kettl's comment on resorting to reorganization in a fractured environment has more meaning given these circumstances.

My first priority in Denver was to assemble a new version of the Habitat Section from the left over organizational parts served up by Management Review. Relative to responsibilities, the Habitat Section was under resourced. The Habitat Section staff knew it as well. Contracting became a way to fill in, basically substituting operational funds for staff. As more species conservation actions sifted into the unit, contracting became more widespread. The limited availability of staff was a recurrent theme in the section.

Boundaries about what issues fell to the section and what fell to others were poorly described from the Management Review documents. Conflicts on whom and how to deal with habitat and species not hunted or fished had been an ongoing debate between the Terrestrial and Aquatic sections since I started with the CDOW. The reorganization intensified efforts to stake out boundaries of the organizational units as few units in the CDOW escaped reconfiguration. A running disagreement involving the Habitat Section and regions emerged over local environmental reviews and communication protocols related to habitat field work. The assigned responsibilities and organizational design made reaching lasting arrangements hard to obtain. I also think the competitiveness around resources and control of agency policy thwarted long-lasting resolution. Frankly, I probably did not help much as I did not make addressing the

conflicts a priority. Other direct and pressing matters were always present which precluded much beyond first aid application when a serious conflict arose.

The Habitat Section used a wide range of contractors to accomplish its objectives. Contractors were engaged in water quality, in-stream flows, water rights investigations, GIS, real estate appraisals and grant programs for wetland improvements, easements, land purchases and habitat improvements. Species and habitat inventory work used a variety of providers. Contracts with CSU, CU, Colorado Natural Heritage Program and a riparian vegetation classification firm, were frequently used. GIS, database programming and model development were contracted with the Natural Resource Ecology Lab at CSU. Contract-based landowner programs ranging from small habitat grants to large scale demonstration projects like the Owl Mountain Project and the Farm Bill Project were active.

The Farm Bill project deserves special notice because it evolved into a vehicle that added contract habitat field biologists. The program was initially contracted with the Colorado Natural Heritage Program at CSU, but on subsequent rebidding was awarded to the Rocky Mountain Bird Observatory (RMBO). The RMBO contract required four biologists to be hired and operated using grant funds obtained by CDOW from the U.S. Department of Agriculture, Natural Resource Conservation Service. The CDOW and RMBO provided match and in-kind services under this grant. The contract between RMBO and CDOW establishes an objective setting and monitoring process involving all the partners. Day to day operation and decision making is handled by RMBO's staff. What began as four biologists in a contract has grown to include additional biologists and I have been advised that the Wyoming Game and Fish Department has entered a similar agreement with RMBO. The contract created a number of challenges, not with the concept or actual implementation but in contract administration and the roles and authorities

of the parties and biologists. Despite the complicated logistics of the program, it has grown as an important private land advice and services provision mechanism for private land wildlife habitats using contractors to deliver services that would normally be provided by federal or state agency staff.

The Habitat Section exercised a variety of real property responsibilities which included fee title, easements, leases, water and other management of the CDOW's real property holdings. While the section used some specialist positions as coordinators of the real property, most specialized tasks related to the properties were contracted. The most commonly contracted services were appraisals, title insurance, water right engineering evaluations, environmental evaluations of various types and boundary surveys. Boundary surveys by statute were capital construction items funded and managed by the Engineering Section.

Contracted wildlife or habitat inventory projects were an ongoing task. Most were contracted through universities. CSU, which includes CNHP, and CU were the most frequent species inventory providers. Contracted inventories were used most in cases where the expertise needed was not available in the Habitat Section or schedule and workload conflicts required outside assistance to meet agency priorities. Some inventory projects were short duration and not routinely repeated. These types of projects were suited for contracting to academic institutions which benefited the CDOW by avoiding training cost, providing work opportunities to skilled students, monitoring by academic experts and as a way to scout potential employees.

Using GOCO funds in CDOW projects drove establishing partnerships with interest groups that likely would not have occurred without GOCO monies involved. The GOCO Board's interest in funding large projects and in spreading GOCO dollars to lots of different parties led CDOW to create or participate in a variety of different agreements, grants and contracts. In some

cases CDOW and other interest developed joint project proposals for GOCO funding, such as The Nature Conservancy and CDOW critical habitat protection proposal. In other cases the CDOW was required to "participate" in projects. At times the basis for the participation was strained and driven by the wildlife quadrant dollars included in the project which were often questioned by the CDOW. These questioned projects fostered doubts about the reliability of the other partners. From my view, GOCOs insistence on expediency and political tradeoffs in some cases created burdens that were passed on to future partnership opportunities.

Land trusts also had their own problems with funding and project cost. They often wanted CDOW to step in and help them out. All kinds of events can happen and put project cost, scope or funding make up at risk. However, it was easy to figure out which land trust would work with their partners from their approach to the project. Some seemed to wait until a few days before an easement or land closing, announce a crisis and expect the CDOW to immediately provide the money to fix the problem. As a state agency, providing a check to anyone involves a lot of steps. Writing big checks involves a lot of steps and doesn't happen quickly. With the funds the Habitat Section used to provide habitat protection grants, the approval process, record keeping and time requirements were large. That was particularly so if federal assistance funds were involved. The end result was that last minute changes of any size just weren't possible and the resulting complaints about the CDOW's collaboration often ended up lodged with legislators and Wildlife Commission by the supposed partners. I couldn't change the rules, but I did have to deal with explaining why the CDOW wasn't being obstructionist and trying to sabotage some local land trust's project. Two things happened as a result: one, an understanding of which land trusts behaved this way was developed; and, two, grant reporting and monitoring requirements increased. A portion of the Colorado land trust community was not pleased with the added

requirements and voiced their displeasure to the GOCO Board, Wildlife Commission and the CDOW Director. Some accommodations were made but the basic requirements remained.

The Wetlands Initiative program was an important program that became a problem for me for two different reasons. One was lack of attention to the administrative requirements by the program's prior administrators and the second was the lack of records and project details when the program was moved to the Habitat Section. Changes in the states contract amendment and cost sharing documentation converged with the movement of the program to create a convergence of grant partners who were unwilling or unable to adjust to the new operational environment and few records existed to determine what had been approved beyond the original grant contract. Sadly, some of the recalcitrant partners were long-time partners in the wetlands and other habitat programs. Contract amendment requirements, fund expiration and payment limits triggered a crisis the new wetlands program manager was not able to head off. The program went sideways. A public blowback occurred at a Wildlife Commission meeting where some partners publicly criticized the CDOW's management of the program, specifically criticizing the program coordinator, and, as a remedy, asked the Commission to give specific direction to the CDOW to support the groups involved in the program and reinstate past program practices (similar to Mutter et al. 1999 description of activity in program implementation). Changing the state's contracting requirements was more than any of those concerned could accomplish.

Changes in the state contracting requirements and process became more frequent during my time in the Habitat Section. With little notice, routinely used contract options were modified or eliminated by the State Controller, the Attorney General or other approval bodies. Court challenges to uses and types of contracts modified the when and with what entities contracts

could be used. Examples of these changes include imposing requirements to determine if service contracts were warranted, restrictions on vendor selection and significant restrictions on sole source contracts. Accounting, renewal and modification requirements increased the time and staff cost to implement and manage multi-year contracts. This was particularly applicable to contracts using matching funds. The matching fund accounting was the largest contributor to the wetland program contract blow-up described above.

The political climate of the state had also changed and the ideological concerns on open markets and market efficiency became central to contracts. The change impacted evaluation of past contracting relationships with state educational institutions such as CSU and DU. The Department of Natural Resources leadership felt that negotiated multi-year intergovernmental agreements were not in the best interest of the state and the CDOW agreements should be open to all bidders. Additionally sole-source or intergovernmental providers were also eliminated under the philosophy that the private sector would provide the best value. The shift to the bidding process had little effect on commodity purchasing, but service contracting ended up in turmoil. I observed there were not a lot of private firms willing to bid on the wildlife work the Habitat Section was offering. In many cases, the successful bidders ended up being the previous contractors from the negotiated contracts but with price increases. Most said the prices increased in response to the new cost of bidding and complying with the added purchasing requirements. Over time the restrictions on intergovernmental agreements loosened, but other elements like bidding requirements did not. One question that arises from this experience is: what was the source of the lack of bidders for the wildlife biology sorts of services? Had the ongoing contracting with universities discouraged the development of non-governmental parties capable of contracting the services? Was this more of a market-based outcome in which private

companies didn't find adequate opportunities to enter the market? Was there some sort of barrier to entry in wildlife services for nongovernmental entities? Seems there were a number of nongovernmental interest groups willing to do some types of wildlife work, but their capacities and interest varied. There were few commercial entities but they specialized in specific areas, for example, lab services or nuisance animal work which had customers outside of the CDOW.

Enhanced contract bidding requirements created a second problem in wildlife contacting. This issue arose from added specificity need on what product, commodity or outcome was requested, by when and so on. Basically, it's the "if you can't describe it, how can you bid it and you probably shouldn't be buying it" argument (Donahue 2008). Some wildlife work has existing standards, procedures or protocols that can form the basis of a purchase order request or RFP. As an example, survey procedures and protocols are established and available for many mammal species through the American Society of Mammalogists. Adding locations, skill requirements and reporting requirements to one of these protocols makes developing a scope of work for bidding and contracting relatively straight forward. In cases where protocols don't exist or a non-standard approach is needed as in the case of creating the scope of work for a population distribution and density survey of some mollusk species where very few individuals are skilled presents a challenge. The challenge gets difficult to solve when staff does not have the skills and is trying to find someone who does. Purchasing administrators are often unsympathetic to claims of difficulties and often respond that if you want a contract, you're going to have to do this scope of work without consulting the likely bidders. Making matters worse in some cases purchasing staff sometimes second guess the biology or need. The problem is the CDOW knows the general description of the survey it needs but may not have staff expertise to specify a detailed scope of work. The general outline is rejected as too vague or questioned by the

purchasing staff. The people who know how to do these surveys are the ones CDOW staff would talk to about how to design the scope of work but CDOW can't because purchasing rules would disqualify the bidder if they did. So this contracting difficulty is skirted in a slightly clumsy, two step strategy of bidding a two-part scope of work which ask for a plan for a survey based on the loose general scope of work and then a second element of implementation of the submitted plan upon CDOW approval. The first deliverable becomes the scope of work for the survey. CDOW will evaluate the plan and if approved the contractor implements the plan they designed as the second part of the contract. This approach solves the problem of obtaining professionally designed scopes of work, but introduces the next difficulty of modifying the contract terms to accommodate changes in the scope of work created by the new plan and any increased cost and raising the potential of having the modification denied due to low initial bids.

The complex management of bid-based approaches for some wildlife tasks led to development of a number of grant approaches to a variety of needs particularly in the wetland and habitat programs. Incorporating elements of the contract bid process into a grant program format performs as a "bid" in evaluation and selection of grant proposals. CDOW could go directly to contract with a grant applicant based on a grant solicitation process, so long as the grant proposal, AKA "the bid", and the contents of the contract were comparable. CDOW internalized the contract process to gain some control over the timelines and process. Not all participants were happy. Some successful grant applicants chaffed over reporting demands, contract provisions and timelines associated with the process. Accounting staff regularly complained about the legitimacy and robustness of the bid evaluation and negotiations.

Developments at the Department of Natural Resources contract unit added more time and administrative process to contracts. Some individuals who were delegated approval authorities

by the State Controller's Office became skeptical of some contracts, vendors and contract provisions. This led to more documentation requirements and delays in contract approvals. Events in other agencies or on administrative decisions, such as the consolidation of all information technology policy and contracting into the Governor's Technology Office added time and staff demands to contracting. Prior to these changes, IT services had been available through open state awards on software maintenance and some types of programming support. State awards were preapproved vendors for selected services or commodities within specified price ranges or hours used. With the consolidation of IT management, the awards became unavailable and all IT procurement was handled by the IT office. In many cases the political rhetoric about streamlining state requirements and using the market to obtain the best deal for the state was at odds with the increasing complexity imposed by the contracts. While the political interests were championing more outsourcing and partnerships, the administrative process was increasingly difficult and less attractive to bidders. The state's reaction to contract problems was more review and approval requirements without an increase in staff, adding to the process times and frustrating contractors and administers alike.

My Habitat and Species Conservation Section time covers an even more active and contract-dependent operation. This suggests the extent, importance and perhaps capacity of contracting depends on what CDOW organizational unit is considered. The Engineering Services Section is likely the largest contract user in the CDOW. They use capital construction funds to construct or replace structures through a statutorily controlled process. Projects using capital construction funds must be completed by contractors. However, looking at strictly wildlife inventories, plans, research and so on, the extent of contracting seems to depend on the organizational unit. Some organizational units use few outside service providers while others use

more. Comparatively, the Habitat Section was much more active than the SW Region and the Aquatic section. Looking at wildlife research tasks, the Terrestrial and Aquatic Sections were more active due to allocation of research funds to the two sections but were less likely to contract for other types of wildlife services. Why should there be differences in the units' use of contracts? Two factors stand out to me: First, agency policies on FTE and fund allocations to the different units influenced use as suggested by the research example. Second, I think that employee skills more directly with the tasks preformed by the Terrestrial and Aquatic Sections as compared to species conservation or habitat tasks. So all things being equal, existing staff is both suited to and used more widely for most task in the Terrestrial and Aquatic Sections.

Available staff gives an organization or organizational unit more control and discretion as described in a good bit of the public administration literature. Fewer staff with an adequate budget should point toward more contracting. Habitat was not privileged in terms of FTE. This limited the skill sets available to apply to objectives or tasks. Contracts were a vehicle to address both products and skills using money. An example is the RMBO Farm Bill biologist. Here the inability to obtain FTEs, even with outside funds to pay the cost, led to contracting the work and locating the positions and capacity provided in a third party. Similarly, limits in staff and skills resulted in inventory and habitat surveys being contracted to for-profit, non-profits and intergovernmental entities.

As contract administrative tasks grew, several positions effectively became program or activity contract coordinators. They were tasked with planning, following the procurement process, coordinating contract development, administering the contract, monitoring and evaluating contractor performance and administer payments. The assignment of this task restricted the time available for these biologists to perform other tasks. Some were good at

contract coordination, others less so. It was also a "learn by doing" situation. Only minimal training on basic contract procedures was available from the Department of Natural Resources, the Department of Personnel and Administration or the State Controller's Office. Advice from peers and supervisors was often the source of advanced contract management information. The demands of the contracting process were generally a poor match with the disposition of wildlife biologists who felt they should be doing biology not paperwork. This conflict in conception of a biologist role was a constant irritant that led people to look for ways to lighten or avoid contracting burdens. One manifestation was extensive use of intergovernmental agreements when available. This favored contracts with CSU, CNHP, CU and other state or federal agencies.

Ongoing contract projects presented different challenges. For example, the Farm Bill biologist contract had to be rebid periodically. This created a great deal of anxiety among all parties. The field biologists worried they might end up without a job, RMBO worried they might have to lay off staff and impact their landowner relationships, NRCS worried they would end up with work they didn't have the staff for or cost share problems and so on. RMBO had the advantage of knowing the program, there are no guarantees. After all, they had won the program from CNHP in an earlier rebidding. The rebidding is also disruptive to projects during and for some time after the process is over, even if there is no change. This is similar to what has been reported in other settings (Milward and Provan 2000).

The Farm Bill biologist contract presented additional issues for the CDOW. Who (organizationally) are these biologists and how do they fit in with the CDOW? Are they doing CDOW work, or NRCS work, or RMBO work and how can one tell? Do they get invited to CDOW meetings? Does CDOW get invited to RMBO Farm Bill staff meetings? Can the biologists "speak for" the CDOW while working with private landowners? This relationship has

been evolving. These and other questions were not settled during my tenure, but the contract benefits are such that the partners have expanded the program. CDOW has hired several of the Farm Bill biologists into permanent positions supporting the benefits of exposure expressed by CDOW staff.

The contracting circle in my career was closed several months after I retired from the CDOW. I started a small wildlife consulting company and I got a call from a CDOW program supervisor about my willingness to perform a data quality analysis and assurance task on property inventories records and real property insurance program. A month later I was a CDOW contractor. Basically, I presented a proposal to complete a part of the CDOW's original request by the deadline required. The agreement was sealed by a purchase order, the product delivered, pay received and all were satisfied so far as I knew. I thought the process worked adequately, if slowly on the paperwork side. A few months later in a new fiscal year, I was asked to submit a proposal to address two new property inventory problems by the CDOW. My proposal was accepted. The first task was completed, accepted and payment made. However, as I started the second task, the CDOW requested a modification to the scope of work while retaining the original compensation delineated in the purchase order. The change CDOW wanted was a reaction to an emerging issue in the federal aid lands inventory. However, the state's unfolding budgetary crisis of that year included executive orders freezing all outside professional service contracting. That meant that CDOW could not amend or issue a new purchase order. Basically, they felt the task they wanted to substitute fit within the task description of the original purchase order even if the new task was not described in the PO but they could not change or issue a new purchase order. I ultimately agreed to complete the work requested. It took a long time to get paid. I don't know the reason for the delays and found CDOW agreeable to correct the oversight

when asked to fix it. It made me appreciate the complaints I had heard from vendors about the state's lack of attention to final payments near the end of a fiscal year.

Why didn't the CDOW bid this project on the open market rather than negotiate a purchase order? I think the contract administrator had two considerations. One was the desire to have someone who knew the CDOW and its records and the second was related and that was time. CDOW was attempting to use available year-end funds which meant they did not have time to bid the work, and weren't required to in any case. Within the timeframe of the PO, there was not sufficient time for someone to learn the data. From the manager's view point, the work could be broken down into discrete parts and completed over different fiscal years suiting both the funds available and also avoiding a competitive bidding process. But why contract this out at all? I asked about this and, as I recall, the response was priorities: there was no position to task this to and, even if there were, it would probably be cheaper for me to do it than staff. Would I have bid on it as a competitive bid? I don't know. I'm inclined to say no, as the current requirements are at best an expensive annoyance for a relatively simple low risk project. Since that time, other provisions added by the legislature have made contracting for state agencies considerably less attractive for individuals or companies that employ state retirees. However, if I did bid on a contract, the price would increase significantly due to the added state requirements on insurance, purchasing registration and contract provisions.

How similar are the three state wildlife agencies? It depends on what is considered and how one looks at them. So it doesn't take long to get back to the postmodern idea of "it depends". I will attempt to make sense of them and the time setting of the experience. As agencies, they share a large set of characteristics surrounding the public trust doctrine, hunting and fishing, user paying, and professional wildlife management. The North American Model

(Geist et al. 2001) is a significant paradigm that informs the agencies and their employees. The three agencies also share a general historical narrative about the origins of state wildlife agencies and the development of professional wildlife management (Brown 2010). Individual agency differences exist in the organizations' functional arrangements and the details of the historical path each organization has traveled. This historical path has been mediated by the wildlife resources of the state, state politics, and the populations of the state. State wildlife agency employees (particularly biologists, though it also seems to me to be true of most state wildlife employees) share a number of beliefs, norms, and behaviors related to wildlife management (Jacobson 2008a, Buck 2009). I found it useful and interesting to observe meetings attended by different state wildlife agency employees and note that, while there were disagreements about policies, management prescriptions or other topics, the extent of disagreement is framed with extensive and unspoken agreement over a wide range of policy and management views. The shared viewpoint is also evident in the similarities in descriptive or professional jargon used by employees from different state wildlife agencies attending national conferences. Another way to see this shared outlook can be found in interactions between wildlife biologists from state and federal agencies. The biology frame of reference is shared, but there is a difference that can be seen. I am not referring to agency mission differences (which do exist), rather, the individuals' adoption of an identity related to being in a state wildlife agency relative to a federal agency.

How can I relate the attitudes about contracts and contract use in the three wildlife agencies? I don't think the experiences are suitable for direct comparison. The gulf of time separating WVDW and GWFC from the CDOW is too large and development of non-government sectors and the roles in wildlife management do not support a direct comparison. However, I think comparison of institutional attitudes and operational environments may be

made. The irony of starting my career as a contractor for a state wildlife agency and ending it as a contractor for a state wildlife agency makes a nice story arc. One could observe how little has actually changed. However, that fails to capture the numerous changes in the political environment, proliferation of non-governmental organizations, and public engagement in the wildlife management environment over the same period.

Excluding commodity purchasing and focusing on contracted wildlife work, my experience suggests a better descriptor of state wildlife agencies use of wildlife service contracting is experimentation driven by necessity. Successful experiments are repeated and adopted if the environmental factors remain. If the drivers of the experimentation change, the experiments stop. The "preferred" mode to address skill needs or added task is to hire staff to satisfy both control and capacity building desires. If hiring is not practical, a search of other options generally leads to the so-called indirect tools of grants, contacts and agreements. Experimentation has been facilitated by the increase in the numbers of "acceptable" contract partners. Expanded availability of wildlife service contractors beyond the traditional Co-op Unit and University partners has enabled wider experimentation and adoption of third party service provision that now include contract biologists. While a good bit of contracted wildlife work fits the description of discrete services, grants for habitat protection, public facilities and biologist contracts clearly fall into third-party service provisions described by authors such as Kettl (2002a) and Salamon (2002a). Enthusiasm for contract use is tempered by the availability and degree of difficulty in securing trustworthy contractors through a procurement process. If the contracting process seemed to take as much effort as was lost by assigning staff, contracts lost their appeal. Perceived risk of contract failure and need to control process dampened the interest in contacts in ways similar to those reported by Brown and Potoski (2003b).

Figuring out how to obtain, administer and otherwise deal with contracts or grants was a "learn by doing" process in all three agencies. Some instructional materials, mostly related to what needed which document was available in all the agencies but little added training or support was provided. Your peers might or might not be helpful or experienced. In general, the employee or cost center supervisor requesting or suggesting a contract ends up with the task to obtain and administer it. All three agencies had purchasing officials with varying interest in helping a biologist with contracting. While not universally true, it seemed to me that as my career went on, more of the purchasing staff viewed themselves as rule enforcers as compared to a shepherd. If you found one who was less inclined to think their job was enforcement, you tried to get all of your contracts through them. Distributed administration of contracts works OK with fewer, simpler, defined contracts but as complexity and numbers of contacts rise, distributed administration becomes less desirable. At CDOW, we ended up with coordinators for different types of contracts such as the CSU Co-op Unit or the wetland program described earlier. The underlying reality remained: you had a biologist or supervisor turn into a contract administrator, learning the task in a learn-by-doing approach. Sometimes that works, other times not so much.

A common theme cropped up in the grant programs and the biologist contracts. The commonality was a continuing and low-level conflict over what and who the program or project was. The conflicts arose from the issues of control and to what extent the program challenged CDOW management practices or outcome desires. The challenges could be described as agency problems, i.e., who is the principal and who the agent? Others, while appearing to be straight forward agency problems, are more complex and I think reflect the shifts in boundary understandings in the CDOW. What is a part of the agency and what is not? The multi-party

contract biologist highlights this challenge, as did the controversy over a series of contracts with Ducks Unlimited to manage some state wildlife areas.

So, it depends - but some things don't. So here are the caveats. I have been afforded many experiences, met a number of wonderful people and a few who aren't. A number of individuals served as mentors and lights along the occasionally dark paths. At the time events may seem random but in the rearview mirror they look suspiciously less random and more linear. I would not be writing this but for that. I am grateful to those guides and perhaps too seldom acknowledge their gift. I don't regret my decision to be a wildlife biologist. I appreciate the opportunities, the individuals and the agencies. It's been a great trip! As I often told staff at awards ceremonies, I saw working in a wildlife agency as much more than just a job. As I conclude this chapter, the reader may reflect on this and the other vagaries of my condition that can skew my recognition and construction of my version of the 'cold hard truth'. As such, this narrative represents part of my story and I'm sticking to it.

5) CHARACTERIZING A STATE WILDLIFE AGENCY'S USE OF COLLABORATIVE MANAGEMENT CONTRACTS USING ACCOUNTING AND APPROPRIATION RECORDS

Synopsis

Collaborative management contract use by the Colorado Division of Wildlife (CDOW) was explored using 12 fiscal years of state contracting and appropriation records. Service and grant contracts are defined as collaborative management contracts for analysis purposes. Hypothesized relationships between funding, personnel numbers and the extent of collaborative contracting were tested using appropriation and accounting records. No relationships were found between collaborative contract use, identified as service contracts in this report, and agency funding or full time employee numbers. The subcategory of grant contracts was significantly related ($r = 0.71$ and a one-tailed significance of $p = .005$) to agency funding. Service contract use increased slightly over the period and the difference between years, while statistically significant, had a minimal effect size and not fully consistent with the hypothesized change. Caution is suggested in interpreting the result due to minimal effect size and in light of finding no corresponding statistically significant increase in expenditures for the service contracts. Hypothesized increases in the number or dollar amounts of contracts with governmental and non-profit organizations (NGOs) were not found.

CDOW collaborative contract use was not related to fund availability or personnel over the 12 fiscal-year-period. The number of collaborative contracts over the 12 fiscal-year-period did significantly differ between years while the value of the contracts between years did not significantly differ. The number of contracts with government agencies and NGOs also did not show significant increases over the time period. This mixed set of findings can be further

understood by the finding that grants and capital property acquisition contracts are significantly related to both total funding and total funds from sources outside of the legislatively appropriated funds. These non-traditional funds vary and account for a large part of the variation in total agency funds. The non-traditional funds and the amount of grant and capital property acquisition contracts are significantly related. The results taken together suggest that CDOW has not significantly expanded its use of collaborative management contracts while the use of grants, a component included in the collaborative contracts, is closely related to both total agency funds and the total available non-traditional funds.

Introduction

The history of government contracting has a long and surprisingly contemporary tone. Kettl's (1993) narrative on George Washington's complaints about contractors to the revolutionary army has a timeless quality. Now as then, a decision to contract reflects a series of decisions that integrate agency needs, options, procurement system capacity requirements and the agency impacts from vendors and effected publics during the development and delivery of services (Cohen and Eimicke 2008).

Much is made of government contracting for goods and services under what has become an umbrella argument of economy and efficiency (Boyne 1998, Christensen and Lægreid 1999, Kettl 2002a, Cooper 2003, Brown et al. 2006). Arguments on efficiency and economy are often situational and grounded in political or philosophical assumptions (Frederickson 1996, Cohen 2001, Salamon 2002a, Brudney et al. 2005). Skepticism of government, a focus on efficiency, preferences for markets and avoiding growth in government have animated the variously named "reinventing", "new governance" and so on but all rest on contracts for implementation (Thompson and Riccucci 1998, Salamon 2002a, Kennedy and Malatesta 2010). Using

contractors to provide services normally provided directly by government employees is referred to by some as indirect government (Kettl 2002a, Salamon 2002b).

Viewed in aggregate, government contracting covers a very wide range of products and services. Yet, contract use varies based on the level of government considered, agency missions, and situational factors (see for example Van Slyke 2003, Hefetz and Warner 2004, Brudney et al. 2005, Ni and Bretschneider 2007, Fernandez 2009, Brown et al. 2010). Federal government departments or agencies have been a preferred unit of analysis in studies of contracts and collaborative management methods (Salamon and Elliott 2002). The focus has chiefly fallen on health and human welfare programs or the occasional large procurement programs embedded in the military and NASA.

The focus on state and local government's use of indirect government approaches has largely fallen on health and human services and some direct service programs like waste management. Minimal information is found about state wildlife management agencies in the literature on indirect government or use of contracts in collaborative management approaches. State wildlife agencies also present an interesting subject because of the agencies Public Trust Doctrine responsibilities (Bacheller et al. 2010) and their roots in the progressive era ideology (Hays 1959). State wildlife agencies are also not "intermediaries" in the sense of the more commonly studied federal, state and local government arrangements. The Public Trust Doctrine does not contemplate trust responsibilities below the state (Freyfogle and Goble 2009, Bacheller et al. 2010) and there are generally no local government analogs to state wildlife agencies.

State level pressures to limit growth of government, improve efficiency and improve services would be expected to reach to state wildlife agencies. The public trust responsibilities, user funding, wildlife specific legal environment and wildlife specific institutional features such

as funding from non-tax revenues suggest state wildlife agencies use of service contracts and indirect government approaches may not coincide with the use reported other state and local governments settings (Brudney et al. 2005). Agency funding by non-tax revenues may also lessen growth limits that otherwise would apply. This study intends to addresses the limited availability of information on state wildlife agencies use of contracts by exploring twelve years of fiscal and accounting records (fiscal years 1999-2010) of the Colorado Division of Wildlife CDOW) based on hypotheses derived from the literature about use of contracts in indirect government and collaborative management.

State wildlife agencies use a variety of means to facilitate planning or participatory processes. While increased understanding and commitments to collaborative management is essential, they are noted as insufficient in themselves to facilitate and maintain collaborative management (Wondolleck and Yaffee 2000, Schusler et al. 2003). Structural support and processes are needed to sustain joint action (Schusler et al. 2003). At some point collaborative processes require some degree of sharing of authority or resources to be effective (Trauger et al. 1995). Sharing of authority or resources is accomplished by contracts.

As government agencies, state wildlife agencies comply with statutes, rules and policies intended to insure government accountability. Agreements involving money or special authorities, no matter their collaborative or delegation intention, are subject to accountability requirements that inform the controls, procedures and authorizations embodied in the state's formal procurement and contracting process (deLeon and Varda 2009). The contract accounting records are used as a direct measure of collaborative management activity in the Colorado Division of Wildlife. In this use, the records for contracts for third party professional service provision and grants are used as indicators of collaborative management activity. Grants are

viewed as inherently collaborative, requiring boundary spanning action (Agranoff 2007). Service contracts are more difficult to definitively characterize as the potential uses encompasses both delegated task and collaborative management implementation. However, Colorado's fiscal policy requires service contractors to operate independent of direct control of the state as well as being independent entities (Controller 2009b; 2010). The accounting records limit the ability to identify the specific purpose of the contracts themselves. In this analysis, service contracts are included as a contract type used to support collaborative management.

In selecting specific types of contracts as measures of collaborative management, it is recognized that other collaborative management support such as employees' time or advice are not captured in the contract accounting record. While these soft supports are important, the direct measure of shared resources and authorities through contracts as captured in the state's accounting system are the focus of parts of this analysis. Further, the public administration literature describes the evolving and spreading use of indirect or third party service provision, yet little published information is available on state wildlife agencies' use of indirect contract tools. This project will begin to address the limited information by exploring the extent of contracts for collaborative wildlife management in a state wildlife agency.

This analysis approach assumes that contracts for services and grants identified in Colorado's accounting records substantially represent the state wildlife agency's use of indirect, collaborative management approaches. Employing this assumption, CDOW accounting records are summarized, descriptively characterized and compared available resources for the same periods. Contract use is compared across the time period for changes in use and differences in types of contract partners.

Hypotheses

It is generally hypothesized that CDOW's pattern of contract use will not match the contract use patterns for state and local agencies reported in the literature. To test this general supposition, five hypotheses were formulated in reference to the government contracting literature. The hypotheses focus on the relationships between funding, agency personnel, numbers and types of contracts and change in use over the time period. Three additional hypotheses are developed that are related specifically to state wildlife agency literature and state government contracting literature.

Money, whether measured as revenue capacity or legislatively allocated spending authority is reported to influence contract use by state and local government agencies (O'Toole Jr. and Meier 2004, Brudney et al. 2005, Ni and Bretschneider 2007). This relationship is more complex than the obvious and simple proposition that without funding, contracts are not possible. Rather, a positive relationship is reported between fiscal resources and contracting. During periods of resource availability, contracting increases are driven by an agency's interest in service improvements and other non- efficiency reasons, but during resource scarcity, contracting is reduced as agencies avoid the scrutiny and transaction cost of contracts (Boyne 1998, O'Toole Jr. and Meier 2004, Ni and Bretschneider 2007).

H_1 The amount of service contracting measured as total dollars awarded by the CDOW is positively related to the fiscal resources available ($\rho>0$).

Narrowing the focus to the subset of contracts that includes grants, governmental service contracts and other indirect purchase of services allows the examination of the relationship between this subset of collaborative management contracts and funding. The hypothesized

relationship is expected to be positive based on the same concepts presented for H_1. The positive relationship described in the literature may be stronger within this contract grouping.

H_2 The total value of grant and indirect service contracts reported for the CDOW is positively related to available fiscal resources ($\rho>0$).

The availability of personnel or expertise is a significant factor in decisions to contract (Auger 1999). Efforts focused on controlling government size, cost and efficiency have favored the use of contractors or service networks. The effect of this preference has at times resulted in diminished agency capacity or the "hollow government" noted in some public administration literature (Frederickson 1996, Milward and Provan 2000, Cooper 2003, Frederickson and Smith 2003, Goodsell 2004, Terry 2005, Kennedy and Malatesta 2010 and others). Many state and local government agencies regularly obtain a variety of services by contract due to insufficient numbers of employees or missing skill sets (Curry 2009). Often, these agencies also face obstacles in adding personnel to address these limitations (Van Slyke 2003) leading to reliance on contractors. Therefore, service contracting is hypothesized as negatively related to the number of full time equivalent employees.

H_3 The amount of service contracting is negatively related to the number of full time equivalent positions available to the CDOW ($\rho<0$).

A primary rational for the increased use of indirect government is that the complexity of public management is growing and exceeds the capacities of government agencies to directly address it (Salamon 2002b). Use of contracted services has steadily increased in government agencies (Cooper 2003, Goldsmith and Eggers 2004, Cohen and Eimicke 2008, Koliba et al. 2011). Contract use is influenced by past contract success and through institutional normative behaviors (Meyer and Rowan 1977, DiMaggio and Powell 1983, Gulati 1995, Brown and

Potoski 2003b, Van Slyke 2009, Gazley 2010). Positive reinforcement of contract use increases the number of employees with contract experience, the number of positive contractor relationships and increases the agency acceptance of contracting (O'Neil 2007, Yang et al. 2009). Increased acceptance strongly influences the current modes of service acquisition and delivery (Lamothe et al. 2008). More experience over time would be expected to increase experience levels and positive outcomes favoring expanded use of contracts. These factors would be expected to influence the CDOW's use of indirect government approaches. Therefore increased use of service contracts over the 12 year time period would be expected and would be seen as increases in both the number of service contracts and the contracts total value.

H_4 The number of service contracts increases over the 12 year time period ($\mu_1 < \mu_2 < \ldots < \mu_{12}$).

H_5 The expenditures on service contracts has increased over the 12 year time period ($\mu_1 < \mu_2 < \ldots < \mu_{12}$).

Government agencies are reported to prefer non-governmental organizations (NGOs; as used here, refers to non-profit organizations) active in similar issue or policy areas due to goal convergence (Brown et al. 2007). Additionally, goal commitment by the people active in NGOs enhances trust (Brown et al. 2007) and provides leverage for added services on agency payments than would be expected from a for-profit partner (Cooper 2003). NGOs are often politically active and advocate for their goals and the programs in which they participate (Cooper 2003). Advocacy and NGO participation can also enhance the credibility of an agency and its programs with the public and politicians (Foster 2001). The converse is also possible, where incongruence in goals reduces government agency contracting (Hefetz and Warner 2004). Contract partner preference rankings of other government agencies, trusted non-profits, less trustworthy non-

profits and finally for-profit organizations has been reported in other government agencies (Brown et al. 2006, Van Slyke 2007). It is theorized that wildlife agencies would display similar preferences leading to an increased use of governmental and non-profit contractors over time.

H_6 The number and monetary value of contracts with governmental agencies increases over the 12 year time period ($H_{6A} = \mu_{number1} < \mu_{number2} < \ldots < \mu_{number12}$ and $H_{6B} = \mu dollars_1 < \mu_{dollars2} < \ldots < \mu_{dollars12}$).

H_7 The number and monetary value of contracts with NGOs increases over the 12 year time period ($H_{7A} = \mu_{number1} < \mu_{number2} < \ldots < \mu_{number12}$ and $H_{7B} = \mu_{dollars1} < \mu_{dollars2} < \ldots < \mu_{dollars12}$).

Methods

Twelve years of contract accounting records were obtained from the Colorado Division of Wildlife. The records covered fiscal years 1999 through 2010. The data sets were supplied as individual fiscal year transactional records which included all actions initiated by the CDOW associated with commitment documents. The commitment documents have different names and are recorded as purchase orders, contracts or intergovernmental agreements depending on the circumstances. Requirements and use of commitment documents are established by the State of Colorado's purchasing guidelines and fiscal rules (Controller 2009a, Controller 2010). The contract data was extracted from the Colorado Financial Records system using the predesigned system reports. The report for each fiscal year was provided as individual Excel spreadsheets.

Data preparation steps.– The fiscal year data were examined to develop an understanding of the data sets. The accounting format of single entry for awards, changes and payments were modified to create separate categories for contract amounts, payments, contract modifications and cancelations. The separation transformed the accounting report structure into

one allowing comparison of the categories and simpler manipulation of the data. The modified spreadsheet data was imported into an Access database. The resulting database contained 79,361 records, each representing an individual transaction tied to individual commitment documents (contracts). The structure of these individual records is depicted in the example found in Table 5.1. Queries were developed in Access to explore, consolidate and characterize the contract data. Data intended for statistical analysis were exported as Excel spreadsheets. Excel was used to visually inspect and standardize the format (variable names, spacing, orientation, etc.) as needed. The data sheets were imported into SPSS, Inc.'s PASW Statistics 18 analysis software. Data sets and variables were visually compared to the import source. Any import errors or missing data were corrected prior to analysis. Legislative appropriation and expenditure reports (Joint Budget Committee 1998; 1999; 2000; 2001; 2002; 2003; 2004; 2005; 2006; 2007; 2008; 2009; 2010; 2011) were obtained, as were additional fiscal years covering a year prior and post of the contract data set period. The reports for fiscal years 2002 through 2011 were obtained from the Colorado Legislatures Joint Budget Committee Staff Reports web page at http://www.state.co.us/gov_dir/leg_dir/jbc/apprepts.htm. Reports for fiscal years prior to 2002 were made available by the CDOW or the Colorado Department of Natural Resources (CDNR) from which the portions relevant to the CDOW were scanned. The appropriation reports provide summaries of the state agencies official budgets in both dollars and employees. Generally, each report contains the agencies' prior fiscal year expenditures and the full time equivalents (FTE) used. The number of FTE used equals the number of full time employees the agency employed during the fiscal year. FTE are also used to allocate and account for temporary employee numbers.

Table 5. 1 Data Format of Excel and Access data files displaying sample data from fiscal year 2005.

Fiscal YR[1]	PURCHASE ORDER	VENDOR NAME	TRANSACTION	DATE	MOD	FUND	APP	ORG	PROG
2005	OEPBA05000000297	COLORADO STATE UNIVERSITY	PVPBAAV050000946	3/18/2005		410	50O	5780	7120
2005	OEPBA05000000297	COLORADO STATE UNIVERSITY	PVPBAAV050000946	3/18/2005		410	60O	6710	7550
2005	OEPBA05000000297	COLORADO STATE UNIVERSITY	OEPBA05000000297	5/25/2005	M	410	60O	6710	7550
2005	OEPBA05000000297	COLORADO STATE UNIVERSITY	OEPBA05000000297	6/1/2005	M	410	21O	2120	7550

(Continued from above)

OBJT	SO	GBL	Comment	DESCRIPTION	AMOUNT	Tran Type	IA expend	PV Amount	Rolled In	Rolled Out	Lapsed
4220		CASH		DIVISION OF WILDLIFE		PV		-$212.50			
4220		CASH		DIVISION OF WILDLIFE		PV		-$2,762.50			
4220		CASH			-$637.50	OE					
4220		CASH			-$212.50	OE					

[1] Fiscal YR= Fiscal Year, Purchase Order = Contract, agreement or purchase order number, Vendor Name = Contractor, Transaction = Individual transaction identification number, Date = Date transaction entered, MOD = Modified entry, Fund = Agency fund identification, APP = Appropriation identification, ORG = Agency organizational unit identification, PROG = Program identification number, OBJT = Code identifying purchase type, SO = Sub-object code used to further identify purchase type (applies to only select object codes), GBL = General budget ledger identification, Comment = Comment field, Description = Contract or transaction descriptors, Amount = amount encumbered by contract or modifications to the encumbered amount, Tran Type = transaction type code, IA expended = Interagency agreement payment amount, PV Amount = Payments made, Rolled In = Contract amounts rolled forward into this fiscal year from previous fiscal years, Rolled Out = Contract amounts rolled forward into the next fiscal year, and Lapsed = Encumbered amount remaining unexpended at the end of a contract and subtracted to close the contract for accounting purposes.

Reports for fiscal years before and after the contract data timeframe provide full records of the appropriations and expenditure data for the period. The content and format of the fiscal year reports have changed over the period. The changes modified or eliminated elements of the reports. Appropriation and expenditures of state and federal funds are consistently reported in all years. FTE allocation report formats have changed over time, however additional data on FTE obtained from the CDOW allowed the FTE data to be adjusted to a similar basis. The appropriations data was collected into an Excel spreadsheet, reviewed for quality assurance, and imported into PASW 18.

Descriptive statistics and graphic representations where developed from the appropriations and contract datasets. Contract types were categorized using the object coding system mandated for state agencies by the Colorado State Controller's Office (2011). The codes are recorded for all contracts in the dataset and allow grouping of the contract records by commodity, service, and capital property and grants contracts. Table 5.2 summarizes the object code groupings applied. The use of "service contract" identifies the combination of contracts identified as personal services, grant, governmental and indirect service contracts. This grouping is equivalent to collaborative management contracts as used in this document. The data collection and preparations steps taken were informed by the data sets and past experiences as a CDOW administrator. Chapter 4, Personal Narrative provides an overview of this experience. The data set variations and the steps taken to address those variations are more fully described Chapter 3, Methods. The complexity of the data sets and the transformation of the individual fiscal year data into a single data set suitable for the analysis took several steps. The end result of the process could vary based on the experience of the individual recreating the data set.

Table 5. 2 Object code category grouping by commodity, service and capital expenditures. [A]

Accounting Group	General Content	C/S[1]
Purchased Service-Personal Srv	Personal Services	S
Operating Expenses	Utility Services	C
	Rentals	C
	Utility Services	C
	Cleaning Services	C
	Maintenance & Repair Services	C
	Motor Veh Maint/Repair Svcs	C
Other Purchased Services	Marketing	C
	Communications	C
	Data Processing-Purch Serv	C
	IT Security-Purch Serv	C
	Education Services	C
	Printing & Reproduction	C
	Legal Services	C
	Purchased Medical Services	C
	Inmate Pay	NI[2]
	Other Purchased Services	C
Purchased Construction Svcs	Purchased Construction Svcs	S
Capitalized Professional Svcs	Capitalized Professional Svcs	S
Debt Service	Bond/Note/Cop Principal	NI
	Bond/Note/Cop Interest	NI
	Bond/Note/Cop Premium Amortizn	NI
	Refndg Gain/Loss Amortization	NI
Capital Lease Payments	Capital Lease Principal	C
	Capital Lease Interest	C
Supplies And Materials	Other Supplies & Materials	C
	Agricultural Supplies	C
	Automotive Supplies	C
	Clothing And Uniform Allowance	C
	Custodial And Laundry Supplies	C
	Data Processing Supplies	C
	Purchase/Lease Of Software	C
	Educational Supplies	C
	Food And Food Serv Supplies	C
	Laboratory & Medical Supplies	C
	Books/Periodicals/Subscription	C

Table 5.2 Continued.

Accounting Group	General Content	C/S[1]
	Office Supplies	C
	Photographic Supplies	C
	Postage	C
	Printing/Copy Supplies	C
	Recreational Supplies	C
	Repair & Maintenance Supplies	C
	Road Maintenance Materials	C
	Noncapitalized Equipment	C
	Noncapitalized Building Mat'ls	C
	Noncapitalized IT Purchases	C
	Noncapitalized Furniture	C
	Noncapitalized Fixed Asset Other	C
Energy	Energy	C
Other Operating Expenses	Other Operating Expense	C
	Awards, Judgments, Losses	C
	Bad Debt Expense	C
	Depreciation Expense	C
	Dues And Memberships	C
	Interest Expense	C
	Sales/Collection Related Expns	C
	Miscellaneous Fees And Fines	C
	Official Fnctns/Customer Wkshp	C
	Patient & Client Care Expense	C
	Purchase Discounts	C
	Purchase Of Highway Row	C
	Employee Training	C
	Royalties	C
	Employee Moving Expense	C
	State Employee Benefit Plan	C
	Nonemployee Reimbursement	C
	Loan Cancellations	NI

Table 5.2 Continued.

Accounting Group	General Content C/S	C/S[1]
	Cofrs Inventory Adjustments	NI
Capitalized Property Purchases	Real Property-Direct Purchase	CP
	Buildings-Direct Purchase	CP
	Land-Direct Purchase	CP
	Land Improvements-Dir Purchase	CP
	Leasehold Improv-Dir Purchase	CP
	Other Real Property-Dir Purch	CP
	IT Capital Asset-Dir Purchase	CP
	Office Furn/Off System-Dir Pur	CP
	Motor Veh/Boats/Planes-Dir Pur	CP
	Library Materials-Direct Purch	CP
	Laboratory Equipment-Dir Purch	CP
	Other Cap Equipment-Dir Purch	CP
Intergovernmental Payments	Intergovernmental Grants	S
	Intergovernmental Purch Serv	S
	Intergovernmental Distribution	S
	Intergovernmental Refunds	S
Other Payments	Fed Grts Pass-Thru To Agencies	S
	Pass-Thru Fed Grant Intrafund	S
	Grants To Nongov/Organizations	S
	Grants To Individuals	S
	Distributions To Nongov/Organ	S
	Distributions To Nongov/Organ	S
	Distributions To Individuals	S
	Other Refunds	NI
	Refunds To Other State Agency	NI
	In-Kind Match	NI

[A] Some object codes included in this list do not appear the data set.
[1] Object codes grouped into: C = Commodity, S = Service, CP = Capital property and NI = Not included.
[2] Object codes dealing with inventory, fund adjustments and tracking codes are not included and do not appear in the data set.

Variables and test.– Independent variables are fiscal years operationalized as the state's fiscal year covering the July 1 to June 30 time period using the last calendar year as the identifier, full time equivalents (FTE), operationalized as FTEs used as permanent positions, and fiscal resources operationalized as the total reported expenditure for each fiscal year. Total expenditures report all the fiscal expenditures of the CDOW, regardless of fund source or expenditure type. The legislative appropriations figures in the Joint Budget Committee reports include different components over the time period. Variations in the reporting of allocated funds and grants render the reported appropriations unsuited as a measure of the available fiscal resources as evidenced by the difference between the reported appropriations and expenditures. The total expenditure data, while not a complete measure of all fiscal resources available in any given year, provides a consistent measure of the fiscal resources under CDOW control in any given fiscal year in the period.

Dependent variables come directly from the contract data set or a re-coding of values within the data set. Service contracts were operationalized using the object codes identified as services (Table 5.2). The object codes were also used to identify, group and operationalize all grant contracts as grants. Contract values were operationalized as the encumbrance (awarded) amounts in the object code groups. The dependent variables of the number of government and NGO contracts were operationalized by creating a vendor identification variable and coding the contracts dichotomously as belonging to the group or not. Those coded "government" were vendors identified as federal, state or local governments and any contracts identified as interagency, or using interagency fund transfer codes. The government category includes universities and colleges. NGOs were identified by name and, in case of unclear status, verified using the organization's web site or the Colorado Secretary of State's database of Colorado

organizations (available at http://www.sos.state.co.us/). Government and NGO contract amount variables were created by including award values of contracts within the groups.

Test for relationship between available funds as an independent variable and the total value of all collaborative type contracts grouped as service contracts (H_1) or grant contracts (H_2) used Pearson's correlation statistics. Pearson's correlation statistics were also used to test for a relationship between employee numbers (H_3), the independent variable, and the total service contract values. Test of differences were conducted by applying the Chi-square statistic in the cases of the number of service contracts (H_4), governmental contracts (H_{6A}) and number of NGO contracts (H_{7A}) which use a dichotomous true-false coding of the contracts and the categorical fiscal year variable. Test of the values of service contracts (H_5), value of government contracts (H_{6B}), and value of NGO contracts (H_{7B}) between fiscal years employed Analysis of Variance (ANOVA) statistics with fiscal years as a categorical variable and contract values as a continuous variable.

Results

Summaries of the legislative appropriation of both dollars and FTE are found in Table 5.3. The headings used in this table reflect the funds subject to legislative controls and include cash funds (license fees), select federal assistance funds, a listing of exempt funds not subject to appropriation and FTEs, the full time employee count. As noted, appropriation rules have changed over the reporting period and Table 5.3 also includes summaries of the CDOW's budget request from fiscal year 2001 for comparative purposes. Note the exempt funds rules changed over the time period and do not reflect all non-appropriated funding available to the CDOW. For example, Great Outdoor Colorado grants are not consistently reflected in the appropriation reports as a result of changes in legal interpretation and administrative policy.

Table 5. 3 CDOW request and appropriations by fiscal year.

Fiscal Year	Appropriated Cash	Appropriated Federal Aid	Appropriation Exempt Cash	Appropriation Total	Appropriated FTE	Requested Funding Total	Requested FTE
FY99	$50,812,364	$7,217,560	$4,850,000	$62,879,924	732.6	-[A]	-[A]
FY00	$51,442,697	$7,973,611	$4,046,390	$63,462,698	744.1	-[A]	-[A]
FY01	$52,705,034	$8,729,630	$8,871,830	$70,306,494	752.5	$99,746,468	752.2
FY02	$55,319,012	$9,325,325	$8,268,974	$72,913,311	752.5	$85,077,916	749.4
FY03	$55,998,887	$9,455,731	$7,180,000	$76,966,422	764.2	$97,479,911	753.5
FY04	$56,303,382	$10,246,134	$12,491,126	$79,040,642	764.2	$113,094,215	764.3
FY05	$54,732,005	$10,236,556	$15,000,000	$79,968,561	762.4	$105,727,780	764.2
FY06	$53,638,072	$9,425,310	$16,000,000	$79,063,382	762.4	$122,284,477	764.2
FY07	$60,126,619	$10,514,472	$8,400,000	$79,041,091	652.4[B]	$106,383,191	762.4
FY08	$51,305,097	$10,903,729	$20,361,289	$82,570,115	652.4	$110,957,765	652.4
FY09	$58,491,644	$10,399,532	$18,063,333	$86,954,509	651.4	$114,495,599	652.4
FY10	$64,178,202	$10,197,576	$12,742,183	$87,117,961	651.4	$121,958,801	652.4

A= Comparable budget request data were not available for years prior to FY01

B= Legislative changes no longer require temporary FTE to be included and reflect only full time FTE from FY07forward.

Table 5.4 summarizes the reported expenditures by year. The data in Table 5.3 and Table 5.4 come from CDOW's official budget request and Joint Budget Committee reports (Joint Budget Committee 1998; 1999, Colorado Division of Wildlife 2000; 2001, Joint Budget Committee 2001, Colorado Division of Wildlife 2002, Joint Budget Committee 2002, Colorado Division of Wildlife 2003; 2004, Joint Budget Committee 2004, Colorado Division of Wildlife 2005, Joint Budget Committee 2005, Colorado Division of Wildlife 2006, Joint Budget Committee 2006, Colorado Division of Wildlife 2007, Joint budget Committee 2007, Colorado Division of Wildlife 2008, Joint Budget Committee 2008; 2009; 2010; 2011).

Table 5. 4 Reported CDOW expenditures and FTE use.

Fiscal Year	Reported Actual Expenditure[1]	Reported FTE Used	Calculated Full Time FTEs[2]
FY99	$89,489,588	687.7	-
FY00	$88,745,789	719.6	-
FY01	$90,714,821	704.8	648.5
FY02	8 7,780,001	701.3	642.8
FY03	9 0,589,648	750.1	651.4
FY04	$98,355,375	758.9	651.4
FY05	$108,215,615	754.5	623.7
FY06	$98,938,913	750.3	613.4
FY07	$95,388,270	622.1	622.1
FY08	$129,229,505	652.7	652.7
FY09	$125,653,605	652.4	652.4
FY10	$127,555,472	651.4	651.4

[1]Actual expenditures include all expenditures regardless of type or source of funds.
[2]Calculated by subtracting the number of FTE used for temporary positions from the total FTE used. Data taken from the CDOW budget request and Joint Budget Committee reports. Data to calculate the amounts prior to FY01 were unavailable.

Total amounts contracted, grouped by the object code categories and fiscal year, are reported in Table 5.5. These totals represent the amounts contained in commitment documents (contracts, purchase orders, intergovernmental agreements etc) by fiscal year. The amounts represent only the purchases requiring a commitment document (a contract as used here) per the

Table 5. 5 Contract amounts by object code and fiscal year.

Object Code Group	Fiscal Years >							
	1999	2000	2001	2002	2003	2004	2005	2006
Temp Prof Serv	$3,937,710	$1,325,459	$1,471,400	$1,143,744	$926,207	$754,525	$756,825	$803,291
Purchase Prof Serv	$953,191	$5,616,869	$4,887,921	$5,714,907	$5,791,130	$5,948,592	$4,557,103	$5,476,707
Misc Prof Serv	$188,477	$15,125	$0	$978,584	$939,196	$1,199,875	$1,128,299	$783,340
Operating Expense	$1,717,395	$1,952,930	$2,186,698	$2,230,817	$2,181,943	$2,737,871	$2,045,593	$2,240,921
Construction Serv	$7,466,408	$8,917,823	$6,775,257	$7,949,600	$6,368,024	$3,748,855	$4,602,993	$4,656,399
Marketing	$18,524	$34,410	$183,218	$93,601	$16,705	$8,175	$24,760	$42,515
Other Serv	$1,743,545	$1,937,008	$2,164,931	$2,890,453	$2,467,121	$2,931,882	$3,397,946	$3,406,645
Supplies & Material	$3,335,452	$4,043,990	$3,730,511	$4,592,990	$4,409,317	$3,822,058	$6,327,317	$4,227,920
Non-capital PC	$0	$0	$0	$0	$773,680	$527,223	$419,448	$642,013
Leased Software	$0	$22,400	$0	$0	$0	$0	$0	$0
Energy	$0	$0	$57,541	$31,344	$83,165	$69,701	$124,776	$75,444
Other Operating	$198,028	$257,646	$234,376	$190,404	$208,654	$240,295	$277,776	$303,132
Intergov Grants	$4,315,045	$6,245,411	$5,454,381	$5,474,465	$4,496,356	$4,399,294	$3,761,255	$4,816,665
Intergov Distribution	$0	$3,779	$29,546	$0	$0	$0	$0	$0
Grant Pass Through	$262,557	$617,447	$326,769	$238,727	$211,965	$521,604	$667,585	$501,147
Grants to NGOs	$0	$0	$0	$0	$150,000	$70,250	$31,750	$85,000
Grants to Individuals	$0	$35,000	$18,000	$41,800	$9,300	$4,140,000	$678,973	$605,635
Other Grants	$10,210	$0	$12,513	$0	$0	$0	$0	$13,000
Distribution to NGO	$288,816	$0	$12,000	$0	$0	$0	$0	$0
Grants to Students	$503,033	$514,770	$541,410	$557,382	$643,426	$515,916	$759,862	$699,266
Payments to Individuals	$0	$0	$0	$0	$0	$0	$12,133	$0
Capital Prop Purchase	$5,208,440	$7,595,413	$11,671,733	$3,072,202	$2,333,675	$4,460,351	$12,845,429	$3,418,471
Lease Purch Real Prop	$9,400,200	$12,300	$23,893	$120,625	$55,593	$143,222	$169,536	$117,760
Capitalize Prof Serv	$0	$0	$0	$0	$0	$0	$0	$101,100
Capital Lease	$0	$0	$0	$0	$9,340	$0	$0	$0
Total	$39,547,029	$39,147,781	$39,782,097	$35,321,645	$32,074,799	$36,239,687	$42,589,358	$33,016,370

Table 5.5 Continued.

Object Code Group	Fiscal Year				
	2007	2008	2009	2010	Totals all years
Temp Prof Serv	$614,650	$624,572	$322,226	$336,310	$13,016,919
Purchase Prof Serv	$4,601,872	$3,869,988	$3,812,583	$4,410,842	$55,641,707
Misc Prof Serv	$590,819	$439,386	$277,821	$162,459	$6,703,380
Operating Expense	$4,309,464	$4,548,830	$4,176,130	$3,755,768	$34,084,360
Construction Serv	$3,032,971	$5,796,175	$4,567,345	$5,580,997	$69,462,846
Marketing	$77,563	$57,868	$109,641	$30,583	$697,562
Other Serv	$3,642,565	$3,661,470	$2,772,667	$3,918,501	$34,934,733
Supplies & Material	$5,223,376	$5,362,887	$5,299,479	$5,213,890	$55,589,188
Non-capital PC	$327,866	$457,321	$465,725	$488,687	$4,101,964
Leased Software	$0	$0	$0	$0	$22,400
Energy	$108,000	$112,719	$100,898	$112,500	$876,089
Other Operating	$307,835	$207,287	$118,777	$106,329	$2,650,539
Intergov Grants	$3,686,119	$3,732,529	$6,081,132	$6,065,711	$58,528,364
Intergov Distribution	$0	$0	$0	$0	$33,325
Grant Pass Through	$1,251,904	$992,997	$1,761,794	$1,757,370	$9,111,867
Grants to NGOs	$1,034,749	$1,382,001	$1,666,521	$1,958,694	$6,378,965
Grants to Individuals	$746,875	$916,845	$686,931	$917,047	$8,796,406
Other Grants	$13,000	$0	$0	$21,525	$70,247
Distribution to NGO	$88,000	$86,298	$2,800,000	$1,338,177	$4,613,291
Grants to Students	$731,083	$538,743	$76,948	$504,938	$6,586,778
Payments to Individuals	$0	$0	$0	$0	$12,133
Capital Prop Purchase	$6,097,797	$27,394,382	$21,628,643	$9,896,446	$115,622,982
Lease Purch Real Prop	$62,516	$9,411	$17,505	$0	$10,132,561
Capitalize Prof Serv	$151,550	$1,264,008	$570,685	$345,501	$2,432,844
Capital Lease	$52,300	$0	$0	$0	$61,640
Total	$36,752,877	$61,455,718	$57,313,451	$46,922,275	$500,163,088

Colorado Fiscal Rules (Controller 2009a). The average total dollar amount contracted during the 12 year period is $41,680,257. The lowest level occurred in fiscal year 2003 in which $32,074,799 was contracted while the highest level occurred in fiscal year 2008 with a total $61,455,718 contracted. The difference between the low and high figures is 92% or almost double and is a difference of $29,380,919. The top five contract expense categories were: capital property purchases, construction services, inter-governmental grants, purchase of professional services and supplies/ materials. A graphic depiction of the contract categories and their relative ranking expressed as totals for all years is presented in Figure 5.1.

A total of 13,448 commitment documents were recorded over the 12 year period. While the majority of these contracts were active for a single fiscal year, many were multi-year agreements active over multiple fiscal years. Many contracts contain multiple object codes and organizational codes and have entries for payments, adjusting funds or moving the contract to future fiscal years and other actions. The result is that any single contract can have multiple entries within the data set. Summarizing this complex data set's occurrence of object codes is found in Table 5.6 which also includes the number of active contracts in each fiscal year. The object code occurrence summary in Table 5.6 along with Figure 5.2 provide a snap shot of the occurrence rates of the object codes within the accounting records without regard to the purpose of the action.

Collapsing the object code groups into commodity, services and capital property (Table 5.2) provides a summarized categorization of contract spending. Table 5.7 summarizes the three types by fiscal year based on the contract values. Also included are percentages by contract group for each fiscal year. Values from the contract data show that, on average, commodities made up 27% of the total contract volume with a range of 18% to 38%, while service contracts

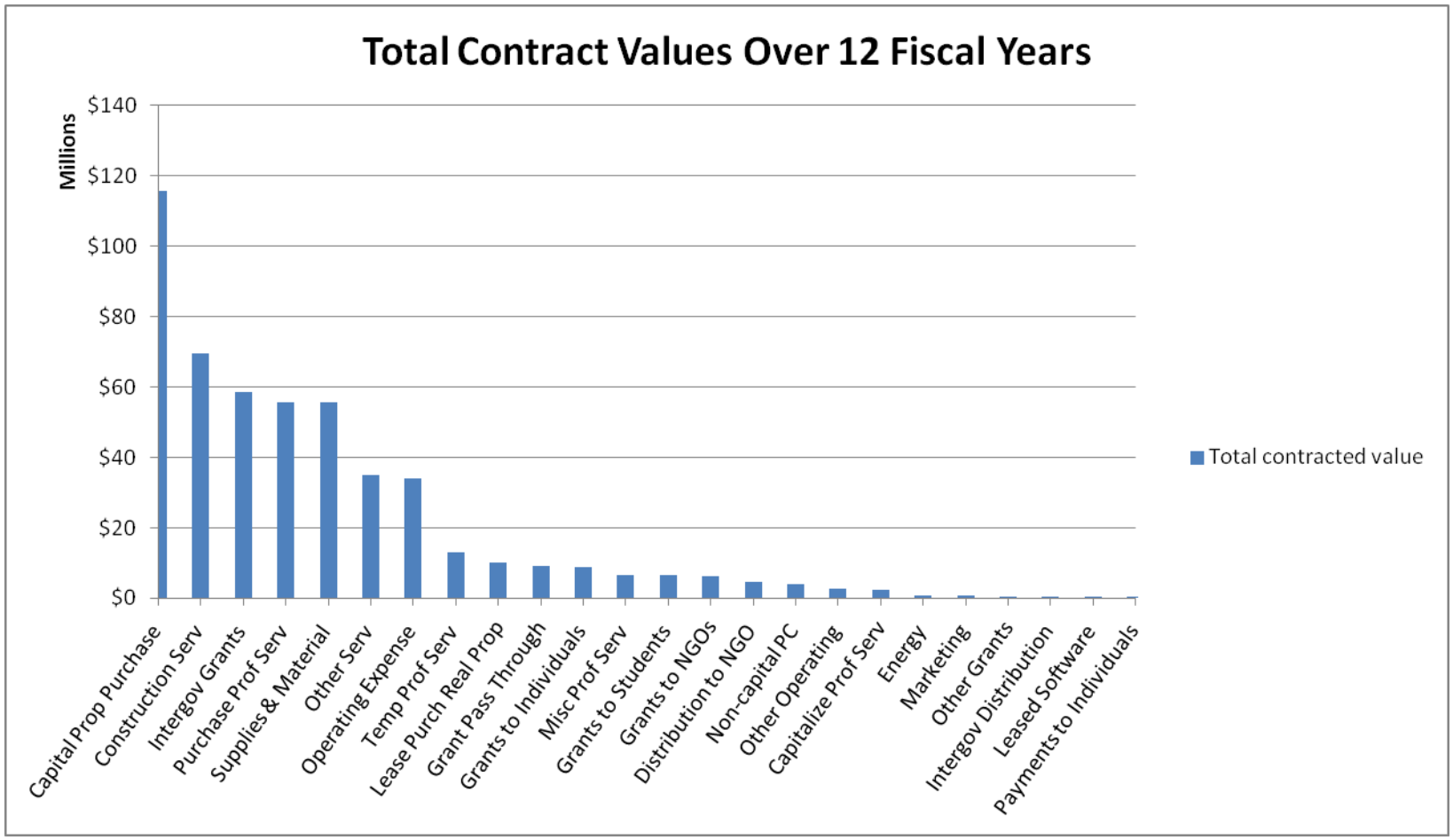


Figure 5. 1 Total commitment document values grouped by object code categories.

Table 5. 6 Contract numbers and object group frequency of occurrence by fiscal year.

Fiscal Year	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**Total**
Individual Contracts	1115	1138	1222	1175	996	1084	1135	1134	1118	1111	1103	1117	13448
Object Group - Frequency of Occurrence in Complete Data Set – All Actions													
Temp Prof Serv	1247	883	863	1310	801	937	686	527	421	447	373	364	8859
Purchase Pro Serv	257	859	1140	887	677	643	689	609	561	516	526	476	7840
Misc Pro Serv	94	10	0	197	214	255	239	158	113	101	33	30	1444
Operating Expense	996	1079	1165	1191	922	860	797	858	1075	956	1044	994	11937
Construction Serv	572	626	568	458	501	464	458	504	312	342	389	358	5552
Marketing	62	63	69	65	60	53	63	66	20	10	12	6	549
Other Services	434	480	473	529	585	621	739	703	795	934	647	737	7677
Supplies & Material	1053	1145	1414	1297	1101	934	1232	1179	1404	1463	1673	1606	15501
Non-capital PC	0	0	0	0	219	158	74	81	48	73	92	146	891
Leased Software	0	2	0	0	0	0	0	0	0	0	0	0	2
Energy	0	0	61	55	104	106	100	59	46	65	136	177	909
Other Operating	85	157	112	82	53	100	134	92	98	72	58	51	1094
Inter Gov Grants	580	758	670	495	921	1291	1293	1391	688	369	640	556	9652
Inter Gov Distribution	2	3	6	0	0	0	0	0	0	0	0	0	11
Grant Pass Through	50	61	40	16	15	15	17	49	64	77	74	72	550
Grants to NGO	0	0	0	0	20	18	10	6	467	520	496	372	1909
Grants to Individuals	0	4	4	6	3	12	24	34	35	45	45	53	265
Other Grants	4	0	2	0	0	0	0	2	2	0	0	9	19
Distribution to NGO	42	0	2	0	0	0	0	0	2	6	12	12	76
Grants to Students	184	130	174	171	87	116	113	105	103	58	16	24	1281
Payments to Individuals	0	0	0	0	0	0	2	0	0	0	0	0	2
Capital Prop Purchase	209	215	146	259	235	229	285	231	250	329	261	162	2811
Lease Purch Real Prop	5	6	11	31	18	35	35	32	4	4	2	0	183
Capitalize Prof Service	0	0	0	0	0	0	0	17	18	57	123	114	329
Capital Lease	0	0	0	0	12	4	0	0	2	0	0	0	18
Total All Objects in FY	5876	6481	6920	7049	6548	6851	6990	6703	6528	6444	6652	6319	79361

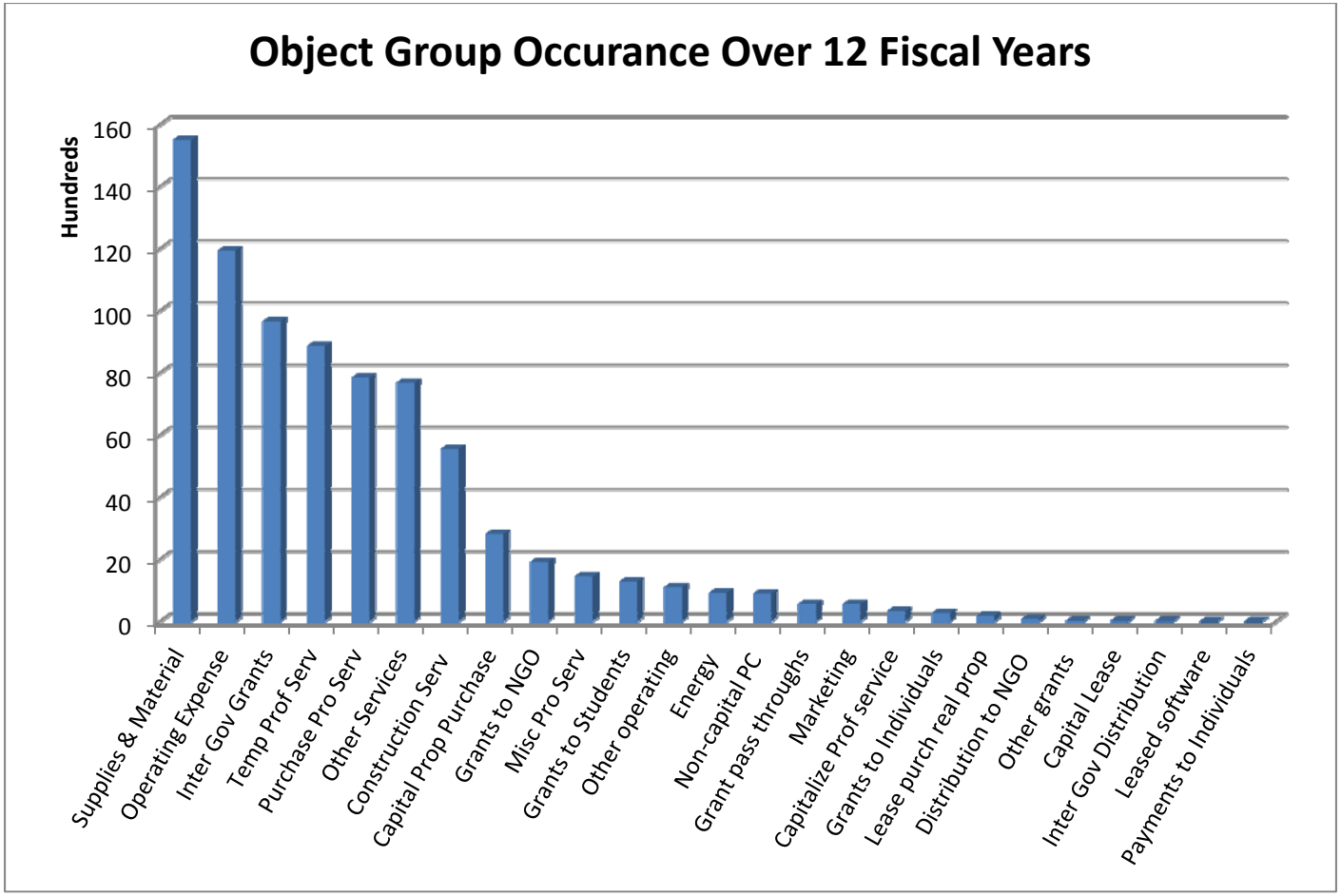


Figure 5. 2 Object group total occurrence in 12 fiscal years.

Table 5. 7 Total contract values percent of total represented by commodity, service and capital property contracts.

	Fiscal Year >						
Major Grouping	1999	2000	2001	2002	2003	2004	2005
Total Services	$17,925,447	$23,291,685	$19,529,197	$22,099,209	$19,535,604	$21,298,910	$16,944,645
Total Commodity	$7,012,943	$8,248,384	$8,557,274	$10,029,609	$10,149,927	$10,337,205	$12,617,615
Total Capital Prop.	$14,608,640	$7,607,713	$11,695,626	$3,192,827	$2,389,268	$4,603,573	$13,027,098
Grand Total	$39,547,029	$39,147,781	$39,782,097	$35,321,645	$32,074,799	$36,239,687	$42,589,358
% Total = Commodities	18%	21%	22%	28%	32%	29%	30%
% Total = Services	45%	59%	49%	63%	61%	59%	40%
% Total = Capital Property	37%	19%	29%	9%	7%	13%	31%

2006	2007	2008	2009	2010	Total All years
$18,541,549	$16,543,594	$19,643,542	$22,623,986	$23,399,571	$241,376,938
$10,938,590	$14,048,970	$14,408,383	$13,043,317	$13,626,258	$133,018,475
$3,536,231	$6,160,313	$27,403,793	$21,646,148	$9,896,446	$125,767,675
$33,016,370	$36,752,877	$61,455,718	$57,313,451	$46,922,275	$500,163,088
33%	38%	23%	23%	29%	27%
56%	45%	32%	39%	50%	48%
11%	17%	45%	38%	21%	25%

made up an average of 48% with a range of 32% to 63%. Capital property contracting averaged 25% of the contracted values and ranged from 7% to 45% in fiscal year totals. Combining capital property and commodities shows on average that 52% of the contract value was for non-service expenditures. Table 5.8 compares the contracted values with the reported expenditures for each fiscal year. Commodity contracts represent an average of 11% of total expenditures with a range of 8-15%. Service contracts average 20% with a range of 15-26% and capital property averaged 10% with a range of 3-21%. Combining commodity and capital property yields an average of 21% of the total agency expenditures in non-service categories. The agency's total contract expenses averaged about 41% of total expenditures ranging between 33-48%.

Hypothesized relationships between the annual expenditure for contracts categorized as services and agency fiscal resources expressed as the total expenditures were not significant. Collaborative contracts operationalized as the total value of grants was significantly related to the available monetary resources with a reported Pearson's correlation coefficient of $r = 0.71$ and a one-tailed significance of $p = 0.005$ (N=12). The number of full time employees per fiscal year was not related to service contract values. The hypothesized relationships posited in H_1 and H_3 are rejected and the null hypothesis of no relationship between service contracting and available fiscal resources or full time employees is accepted. In the case of H_2, the proposed positive relationship between the available fiscal resources and use of grant contracts is accepted.

Chi-square analysis of the number of service contracts, the number of service contracts with other government agencies and the number of service contracts with non-profit NGOs are reported in Table 5.9. The Chi Square statistics report that the yearly differences in the number of service contracts is significant at $p < 0.001$ ($X^2 = 77.69$) indicating that there is a statistical relationship between the fiscal year and number of service contracts. However, the effect size is

Table 5. 8 Contract totals by category, total agency expenditure and contract group percentage of total expenditures.

	Fiscal Year >						
Major Grouping	1999	2000	2001	2002	2003	2004	2005
Total all Services	$17,925,447	$23,291,685	$19,529,197	$22,099,209	$19,535,604	$21,298,910	$16,944,645
Total all Commodity	$7,012,943	$8,248,384	$8,557,274	$10,029,609	$10,149,927	$10,337,205	$12,617,615
Total all Capital	$14,608,640	$7,607,713	$11,695,626	$3,192,827	$2,389,268	$4,603,573	$13,027,098
Grand Total	$39,547,029	$39,147,781	$39,782,097	$35,321,645	$32,074,799	$36,239,687	$42,589,358
Total Reported Expenditure	$89,489,588	$88,745,789	$90,714,821	$87,780,001	$90,589,648	$98,355,375	$108,215,615
% Operations	8%	9%	9%	11%	11%	11%	12%
% Services	20%	26%	22%	25%	22%	22%	16%
% Capital Property	16%	9%	13%	4%	3%	5%	12%
% of Total Expenditure as Contracts	44%	44%	44%	40%	35%	37%	39%

2006	2007	2008	2009	2010	Total All Years
$18,541,549	$16,543,594	$19,643,542	$22,623,986	$23,399,571	$241,376,938
$10,938,590	$14,048,970	$14,408,383	$13,043,317	$13,626,258	$133,018,475
$3,536,231	$6,160,313	$27,403,793	$21,646,148	$9,896,446	$125,767,675
$33,016,370	$36,752,877	$61,455,718	$57,313,451	$46,922,275	$500,163,088
$98,938,913	$95,388,270	$129,229,505	$125,653,605	$127,555,472	$1,230,656,602
11%	15%	11%	10%	11%	11%
19%	17%	15%	18%	18%	20%
4%	6%	21%	17%	8%	10%
33%	39%	48%	46%	37%	41%

Table 5. 9 **Chi Square analysis of the numbers of service, government and NGO contracts.**

Variable	Count	Fiscal Year														
		1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	X^2	*p value*	*Cramer's V*
Service Contract														77.69	>.001	.07
	No	89.4[1]	88.0	87.0	88.3	87.5	84.4	83.5	82.5	82.4	83.3	83.4	82.1			
	Yes	10.6	12.0	13.0	11.7	12.5	15.6	16.5	17.5	17.6	16.7	16.6	17.9			
Government Contract														48.65	>.001	.06
	No	83.1	82.6	85.2	86.3	88.9	86.1	83.2	82.1	83.6	86.5	87.3	86.4			
	Yes	16.9	17.4	14.8	13.7	11.1	13.9	16.8	17.9	16.4	13.5	12.7	13.6			
NGO Contract														18.28	.075	.04
	No	95.6	96.0	95.8	94.0	95.8	95.2	94.7	93.8	94.3	94.2	94.0	94.9			
	Yes	4.4	4.0	4.2	6.0	4.2	4.8	5.3	6.2	5.7	5.8	6.0	5.1			

[1] Figures are expressed as percentage (%) of contracts that are coded as exhibiting of not exhibiting the variable characteristic.

minimal (Cramer's $V = 0.07$) indicating low practical significance. The Chi-square statistic's sensitivity to sample sizes (Vaske 2008) which suggests finding a significant but minimal effect in a sample of this size here would not be unexpected. Examining the distribution of contract services numbers shows an increase in the number of contracts from about 10.6% to 17.9% with the major increase coming prior to fiscal year 2005 and nearly stable numbers after. The change in contract numbers is equal to 82 contracts using the lowest and highest contract numbers. Exploring the increased use of service contract finding further, the mean for service contracts per fiscal year is 504 with a standard deviation of 76. The 95% confidence interval, based on the mean statistic, includes all of the individual year's actual service contract totals. The data show a slight but uneven increase in the number of service contracts over the 12-year period. However the hypothesized incremental increases were not found and H_4 is rejected and the null hypothesis of no yearly increase is accepted. ANOVA testing for increases in service contract use based on increases in the total dollar amount contracted was not found to be significant. An increase in the dollar value of service contracting by the CDOW is rejected and the null hypothesis of no statistical difference between the fiscal years for spending on contracted services is retained.

The number of contracts with other government agencies was hypothesized to increase over the 12-year period (H_{6A}) as was the awarded amount (H_{6B}). The number of contracts with government agencies was tested using Chi-square as previously described. The Chi-squarestatistic for the government contracts is $X^2 = 48.65$ with a $p < 0.001$ with a Cramer's $V = 0.06$, indicating a minimal effect size. The percentage of contracts in each fiscal year with other government agencies in Table 5.9 reveals year to year variations with the highest occurrence of governmental contracts occurring in the middle of the fiscal year period studied. The statistical result is significant but without the directional component of the hypothesized relationship.

Therefore H_{6A} is rejected and the null hypothesis of no yearly increases in the number of contracts with government agencies is retained. Likewise comparing total service contract amounts by fiscal year employing ANOVA techniques reported no significant differences between fiscal years. Therefore H_{6B} is rejected and the null hypothesis of no differences in the amount of contracting with government agencies between fiscal years is retained. Test for significance for increasing service contract use with non-profit NGOs using Chi-square test found no significant differences in the number of contracts. H_{7A} is rejected and the null hypothesis of no significant difference in the number of contracts with NGOs over the period is retained. An ANOVA comparison for increases in the value of service contracts was found no significant differences between years. H_{7B} is also rejected and the null hypothesis of no significant difference in contracted amounts to NGOs over the fiscal years is retained.

Additional considerations on grants.– Finding that grant contract expenditures were positively correlated with fund availability ($r = 0.71$ $p = .005$) provides additional insight into the CDOW's use of collaborative contracts. The category identified as grant contracts is composed of three grant types: inter-governmental grants (the largest component), general grants, and pass through grants. A visual representation of the grant expenditures is presented in Figure 5.3.

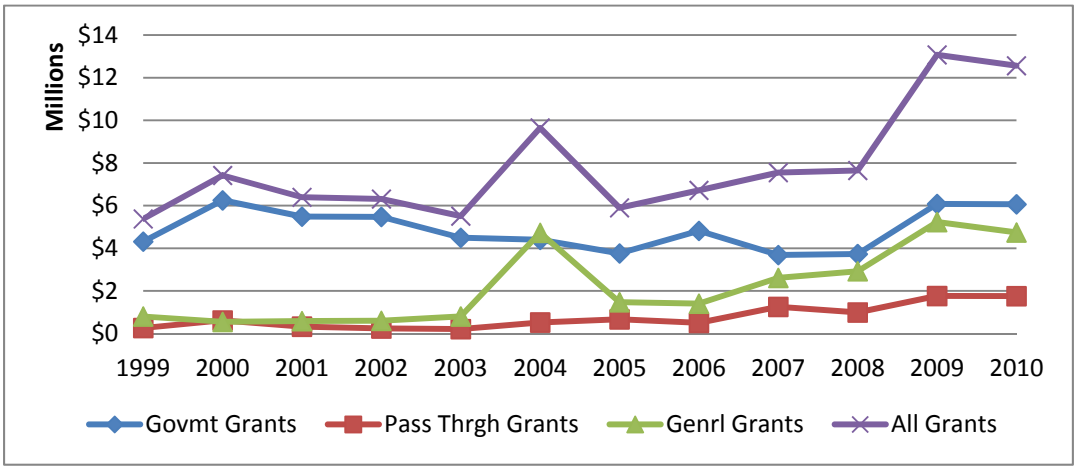


Figure 5. 3 Grant expenses by grant categories.

To help portray the relationship between grants and funding, Figure 5.4 depicts the legislative appropriations to CDOW and CDOW's total reported spending.

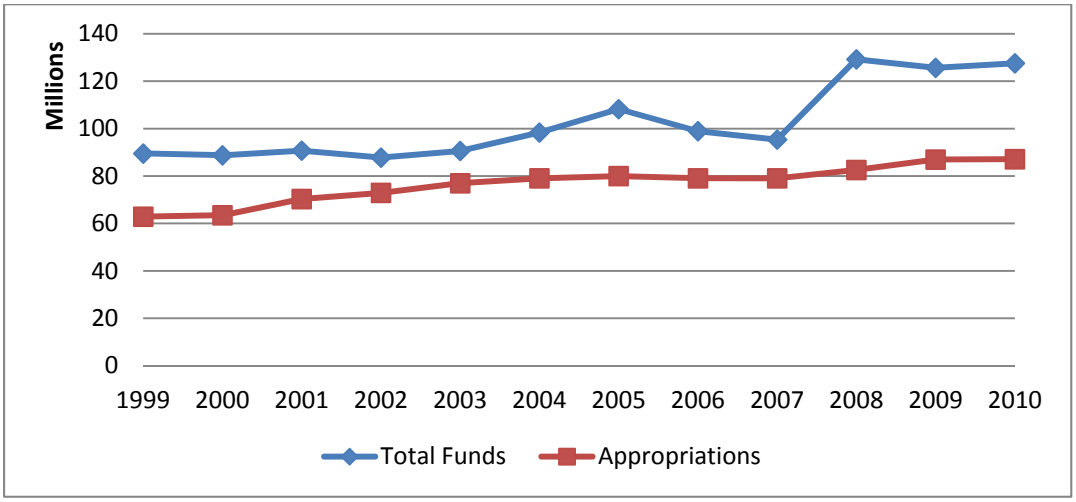


Figure 5. 4 CDOW total expenditures used as total available funds and appropriated funds.

Considering the statistical relationship between grant expenses and financial resources, and comparing the steady increase in legislative appropriations compared to the variable un-appropriated or "non-traditional" portion of the CDOW's spending suggest the variation in grant spending is related to the variable availability of the non-traditional funds. The dollars spent in excess of appropriations are not identified in the documents available. The missing identity and amounts in the appropriation data strongly suggest the funds are from legislatively exempted grants. Earlier appropriation data identified GOCO funds as one source of funds in this category. To the extent that the funds represent grants, the year to year amount would be expected to vary and possibly have specific restrictions or use requirements. Using these funds directly or indirectly to fund CDOW grants to others rather than day-to-day operational or personnel cost would be consistent with the conservative and traditional agency management approaches reported for state wildlife agencies (Nie 2004a, Anderson and Loomis 2006, Jacobson and Decker 2006, Buck 2009).

Available funds not subject to legislative control are identified here as the difference between the appropriation and actual agency expenditures in each fiscal year (Figure 5.4). These funds would be outside of the legislative appropriation process but subject to the CDOW's and the grantors requirements. Spending these funds would still be subject to the procurement and contracting process. An example is the Great Outdoor Colorado funds for habitat protection. To obtain a grant, the CDOW must secure approval from the Great Outdoors Colorado Board which frequently imposes partnership, cost sharing and local support requirements. Additionally pass through grants from federal agencies and other federal grants require cost sharing in addition to coordination and partnerships elements.

A relationship between the size of grant and capital property acquisition contract values and the amount of non-traditional funding is hypothesized base on:

- Conservative management policies of the agency
- Non-traditional funding is targeted to specific objectives often in areas of private land habitat protection or land acquisition actions
- Non-traditional fund sources require partnerships and political support
- Grants expenditures are statistically related to total agency funding
- The slow, stable growth of legislatively appropriated funds and stable FTE numbers

The relationship of total grant and capital spending to the amount of non-traditional funds was not originally hypothesized. In light of the finding of a statistical relationship between grant expenditures and total agency funds and the visual similarity of the descriptive data (Table 5.7 and Figures 5.3 and 5.4) suggest a stronger relationship between grant and capital property expenditures and total available funds. Testing the hypothesis that that spending on grants and

capital property is positively related to the amount of non-appropriated funds was conducted using the difference between the appropriated funds and total expenditures as the independent variable of non-traditional funds and the sum of the grant and capital property contract values as the dependent variable. A Pearson's correlation was used which returns a correlation coefficient of $r = 0.98$ with a $p < 0.001$. Interestingly, the reported expenditures for capital property and grants consistently exceeded the total of the non-traditional funds by an average of 26% over the 12 year period suggesting a cost sharing component which would be consistent with requirements from granting entities such as GOCO and many federal grants.

Discussion

The 12 fiscal years of CDOW's contract accounting data portrays a use pattern that varies only slightly in the number of total contracts year to year (Table 5.6). As part of this relatively stable number of contracts, collaborative management contracts (defined here as professional personal services and grants) did increase slightly, about 7%, or 82 additional contracts. Over the period, most of this increase occurred in the earlier fiscal years as the later fiscal years numbers were essentially stable. No statistically significant changes in expenditures were found for the period. Total funds available to the agency regularly increased over the period but the increases varied year to year, sometimes substantially (Figure 5.4). However the increases in total funds did not lead to increased use of collaborative contracts or to statistically significant changes in collaborative management spending as suggested by some literature (Boyne 1998, O'Toole and Meier 2004, Brudney et al. 2005, Ni and Bretschneider 2007). However, grants, which are a component of the collaborative contracts, did show a statistical relationship between total funds and the grant expenditures (Pearson's correlation coefficient $r = 0.71$ $p = .005$). The relationship

of this component rather than all collaborative contracts to total available funds suggested the CDOW applies different decision criteria on use of grants.

Steady increases in contract use to increase public service capacity demands (Cohen 2001, Cooper 2003, Goldsmith and Eggers 2004, Koliba et al. 2011) were not evident in the contract use pattern observed. Likewise the suggestion that use of contracts increases as employees become familiar with and successful employ contracts to meet the agency's needs was not seen in the relatively stable numbers found in the data (Brown and Potoski 2003b, O'Neil 2007, Van Slyke 2009, Yang et al. 2009, Gazley 2010). The relatively constant number of collaborative management contracts does not rule out the influence of experience and capacity as influences. Other decision factors or perhaps less positive contracting experiences may be more influential.

Reductions in direct service capacity as a result of reductions in employees has been suggested as a path to increased reliance on contractors (Frederickson 1996, Milward and Provan 2000, Cooper 2003, Frederickson and Smith 2003, Goodsell 2004, Terry 2005, Kennedy and Malatesta 2010), and has often been referred to as "hollow government'. This type of change was not evident. The CDOW's number of permanent employees was essentially unchanged over the time period. Finding no relationship between employee numbers and use of collaborative contracts was not surprising given little change occurred in either variable. The CDOW's need for special skills also appears to have remained relatively unchanged as contract spending did not significantly increase as Curry (2009) suggest occurs when unavailable skill sets are needed and employee numbers are limited.

Preferential use of government or NGOs in collaborative contract applications related to similarities in goals and degree of trust (Cooper 2003, Brown et al. 2006, Brown et al. 2007). In

the CDOW no statistically significant increases in use of collaborative management contracts with other government agencies and NGOs were found. No statistically significant pattern of increased use of governmental or NGO service contracting or expenditures with those entities were evident. Instead numbers of contracts with either entity varied year to year but expenditures with those entities were not statistically different over the time period.

These results do not portray a state wildlife agency that is actively expanding its use of collaborative contracting in wildlife management. The results are interpreted as maintenance of an established pattern of contract use with small increases in the number of collaborative management contracts over time. Annual spending on services varies year to year but does not display statistically significant growth or any relationship to agency's total expenditures and FTEs. The lack of a significant finding occurs without adjustment for inflation which would be expected to increase the likelihood of finding increased spending.

The pattern of CDOW contracting suggests the influence of two general management approaches that inform the extent of collaborative management contracting. The first informs the agency of the types, extent and the entities that are included in collaborative management actions. It draws on the model of a traditional wildlife agency sketched by some authors where path dependency works to maintain traditions and relationships (Nie 2004a, Jacobson and Decker 2006, Decker et al. 2011) and the interaction of behavioral norms, professional values and experience (Wondolleck and Yaffee 2000, Fleishman 2009) limit the extent of collaborative management contracting. The stability in personnel numbers with increasing funding would buffer agency from stimuli to increase use of collaborative management contracts.

The second is applying the variable non-traditional funds to grants and capital property acquisition. This approach allows the agency to address habitat management needs that require

the use of exchanges or collaboration (Fleishman 2009) while retaining a direct service approach in other program areas. Additionally grants can be easily adjusted to accommodate the fluctuations in the non-traditional funds. It is also probable the fund requirements are related to habitat projects implemented through grants.

This analysis of collaborative management contracting in a state wildlife agency used the official accounting records to assess the extent and change in use of these contracts. Acknowledging that contracts do not capture all collaborative activities of a state wildlife agency, they do document the transfers of funds or authorities which are a direct measure of the active engagement in collaborative management through third parties. The introduction to this chapter hypothesized that state wildlife agencies used collaborative type contracts differently than literature described uses in other state and local governments. The result confirms a different pattern of collaborative management contract use by the CDOW's than typically described in other state agencies in the literature. Specific characteristics that may partially explain the differences reported include: relatively secure agency funding; shared organizational norms; professional beliefs; statutory authorities; and trustee obligations under the Public Trust Doctrine.

Limitations.– This study uses contract records as measures of collaborative management in the CDOW. The selection of specific categories of contracts as collaborative using the state's contract codes is subject to different interpretations. Additionally some contracts within the categories may be more delegative than collaborative. The use of contracts does not account for other collaborative actions the CDOW may participate in but do not require contracts. The exclusion of capital property acquisition contracts could be questioned. This contract category includes an unknown number of conservation easement acquisitions. The conservation

easements could be considered a collaborative management agreement in that the landowner and the CDOW are entering into a long-term shared ownership of real property. The capital property contracts tend to be large and account for a large part of the year to year variation in contract spending. Inclusion of these contracts in the collaborative contract count would affect the contract numbers and perhaps influence the results of the hypothesis testing related to expenditures.

Statistical test applied were limited in some cases by the specific data characteristics as in the dichotomous variables on government or NGO contract numbers. Other data collection methods could have been applied to obtain different insights as either an independent analyses or to add to the interpretation of the contract data set. Interviews intended to explore collaborative actions or survey methods could provide insights into other collaborative efforts to capture a larger description of the CDOW's involvement in collaborative management.

General limitations in this study are imposed by the steps necessary to prepare and interpret the accounting data set. The personal experience of the author with Colorado's accounting system helped in the data preparation but would likely not be duplicated except by someone similarly skilled. Personal experience with a number of the specific contracts in the data set is believed to be advantageous to this analysis. However this same experience may indirectly influence the results in ways that would not be immediately recognized. Specific limitations are imposed by the accounting system characteristics and the transaction metaphor the data set is based on. The data set required transformation steps and consolidation to facilitate analysis procedures. Considering the size of this data set, the data management steps could have created as yet undetected errors in spite of the quality assurance steps applied. The accounting record is also an artifact that partially reflects the decisions and actions by the parties involved in

the state's contracting and accounting processes. The aggregation of funding and contracting data as used in the analysis is based on the categories and codes in the data set. The coding was accepted as correct and no effort to assess the reliability or accuracy of the codes was undertaken.

The use the total expenditures as a substitute for total fund availability was a compromise made to allowed for comparing collaborative contract amounts with total funds. The use of the annually reported total spending by CDOW was necessitated by the unavailability of any consistent and comprehensive reporting of total available funds. The total expenditure data is believed to represent a lower value than the total available funds in any fiscal year. However, the data sets available provide no reliable method to verify this belief or calculate total available funds. The total expenditures data reports all expenditures which includes the groups of contracts identified as collaborative contracts in this analysis. This does not impact the analysis of the contract numbers or collaborative contract expenditures between fiscal years. It is a consideration and a caution applicable to the interpretation of the statistical relationships involving total available funds.

6) AN AGENCY THEORY EXPLORATION OF STATE WILDLIFE AGENCY CONTRACTING: THE PARTICIPANTS PERSPECTIVE.

Synopsis

An a priori agency theory framework was used to explore interview transcripts of state wildlife agency staff, state procurement staff and contractors in Colorado and Wyoming. Interviews were conducted as part of an exploration of the use of contracts in wildlife management activities by two state wildlife management agencies. An agency theory framework was used to characterize the interview content by coding direct and indirect references to moral hazard, adverse selection and monitoring references in a setting with two executive agencies and contractors as the units of analysis. A "multiple principal" reading of the transcripts was employed when the content supported different assignment of principal or agent roles for the executive agencies.

Agency theory references were found in higher numbers in two principal and agent arrangements. In the first, positioning the state wildlife agency as principal with contractors as agents, adverse selection references predominated and arose from performance and asymmetric information concerns. Relational or experience-based monitoring approaches were most frequently reported. This pattern is consistent with the interviewee's reports of limited numbers of accepted and skilled wildlife contractors with whom the agency has had long term relationships. In the second principal-agent arrangement of purchasing agents and the wildlife employees, a conflict over which group is the principal and which the agent emerges. Exchanging the principal and agent roles between the purchasing and wildlife management functions presents different agency theory conflict profiles. Regardless of which was assigned the principal role, moral hazard concerns driven by goal conflicts were most frequently

identified. Performance concerns and hidden information were the most frequently mentioned adverse selection problems. However, the occurrence rates were different in the two arrangements of principal and agent reflecting differing concerns of the procurement and wildlife staff. The most frequently applied monitoring approach was obtaining information about the agent's actions for both procurement and wildlife.

The agency theory analysis provides insight into how implementation boundaries and capacities differ across the entities needed to successfully apply collaborative management contracting. First, the internal state agency conflicting goals and administrative charges to the agencies present capacity needs that are different from those needed in the relationship and experienced based between the wildlife agency and contractors. The insight provided by the application of agency theory can be used to inform the selection of theoretical approaches for future inquiries.

Introduction

Agency theory features prominently in exploring contract use and contracting relationships. The theory's formulation uses the concept of a contract between a principal, desiring some action it cannot accomplish and an agent to whom the task is delegated along with the incentives needed to insure the agent's action. Agency theory is often applied in more complex situations than the dyadic relationship use in the proceeding description. It is often employed to analysis relationships between legislative and executive branch agencies, as a generic unified "state" and other entities or in private organizational settings. In all applications, agency theory collapses complex situations into a principal and agent dyad. In this exploration agency theory is applied to a small scale case focused two executive branch agencies with differing responsibilities and one agency's contractors. The interaction of the three entities and

the influence of the relationships on use of collaborative management contracts are considered. This exploration applies fixed model of agency theory elements to the relationships and actions described by participants during interviews about the use of collaborative management contracting by state wildlife agencies. This approach provides an insight into characteristics of the relationships between state wildlife agencies, procurement staff and contractors active in implementing collaborative management contracts.

Participants are drawn primarily from one state wildlife agency with a second smaller group of participants from a second state wildlife agency as a comparison to the larger group. A structured agency theory framework was applied to identify agency theory content in interviews conducted to inquire into state wildlife agency's use of collaborative management contracts and associated implementation concerns. The evaluation of interviewee statements using agency theory examines the relationship of the two executive branch agencies for the occurrence of agency theory elements, roles the participants assume. The results are used to characterize the extent to which agency theory elements influence use of collaborative management contracts or identifies capacity or boundary management concerns.

Literature Review

State wildlife agencies.– State wildlife agencies differ from the governmental environments typical of the service delivery relationships reported in social and protective services settings by authors such as Kettl (2006) or Salamon (2004). Governance and wildlife management policy discussions in the most recent wildlife management literature focuses on the merits of change in institutional elements of wildlife management (see for example Jacobson and Decker 2008, Buck 2009, Jacobson et al. 2010). The literature also contains numerous references to natural resource agencies' efforts to manage and engage the public, communities, contractors

and corporate interest through various collaborative management, regulatory processes and local decision making processes. These efforts are described under a variety of terms, most often as collaborative management or public participation initiatives which employ collaborative processes and social interaction measures (see for example Leach 2006, Ansell and Gash 2008, Margerum 2008).

The general forces reported to drive use of contractor in other government programs (Frederickson 1996, Rhodes 1996a, Gilmour and Jensen 1998, Kettl 2000b, Kettl 2000a, Salamon 2004 and others) would also be expected to apply to state wildlife agencies. However, natural resource agencies are reported to have mixed views of contractors which encompass a range of roles including: political allies; service providers; sources of labor; sources of expertise; incompetents; and, occasionally threats to the agency (Jacobi and Wellman 1983, Trauger et al. 1995, Foster 2001 and personal observations). Also, natural resource agencies are often portrayed in the literature as viewing third parties as a way to benefit the agencies' objectives by completing tasks, "leveraging funds" through cost sharing or generating political support, managing and providing volunteers, or analyzing projects for suitability to distribute to other non-agency parties (Jacobi and Wellman 1983, Trauger et al. 1995, Foster 2001). Literature reports of third party impacts on wildlife agency policies typically focus on regulatory or allocation decisions in which the third parties are either characterized as representatives of traditional wildlife user groups or as groups not aligned with traditional wildlife interest groups (Mutter et al. 1999, Nie 2004a, Jacobson and Decker 2008, Buck 2009).

Agency theory.– Exploring contracts and contractors necessarily invokes consideration of agency theory. Simply described, agency theory presents the aspects of a relationship where one party (the principal) delegates work to another (the agent) using a conceptual contract as a

construct to highlight the elements of the relationship (Eisenhardt 1989, Shapiro 2005). Agency theory distills all types of relationships including elements of power, power inequalities and delegations into a question of control of the agent and the limitations presented by the asymmetrical information existing in the relationship (Eisenhardt 1985, Mitnick 1992, Whitford 2002, Shapiro 2005, Moe 2006, Erridge 2009). Agency theory is applied in many settings and uses discipline specific aspects to highlight specific relationship elements, control issues or compensation approaches.

Agency theory assumes all parties are self interested, risk adverse, and exhibit bounded rationality. The parties are assumed to have conflicts and information about the relationship is a commodity that can be obtained for a cost (Eisenhardt 1989). The formal literature cites two types of agency problems: moral hazard (generally characterized as the shirking agent), and adverse selection (generally characterized as an unfortunate selection of an agent based on misrepresentation of the agents abilities) (Arrow 1985, Eisenhardt 1989). In either case, the main problem addressed by agency theory arises from the assumption that the principal cannot easily or inexpensively verify information about the agent or the agent's actions (Eisenhardt 1989).

Government service contracting creates at least two separate agency relationships: one between the voters (principals) and the bureaucracy (agent), and the second between the contractor (agent) and the bureaucracy (principal) (Kennedy and Malatesta 2010). It can be argued that multiple principal agent relationships are routinely created in government contracting and, depending on the setting, a network arrangement results. The existence of multiple principal and agent roles for members of service provision networks has been described and an agency theory analytical framework applied (Provan and Milward 2001). In these networked agency

relationships, information becomes the critical component in organizing the multi-party, multi-principal and agent role relationships (Kettl 2000a).

Agency theory is criticized for its use of the self-interested individual metaphor which ignores cooperative behaviors (Lambright 2009). Often stewardship theory or relational contracting behaviors are invoked in situations where agents are not expected to be self-interested maximizers as when non-profits are contracted to provide services related to their mission (Lambright 2009). Agency theory is also criticized as misunderstanding the conflicting interest problems created in multi-principal systems where agents cannot opt out of acting for multiple principals (Shapiro 2005). Ultimately agency theory's scope is limited to providing direction on how a principal can control its relationship with an agent to promote goal alignment and reduce opportunistic behavior by employing monitoring, sanctions and incentives (Van Slyke 2009). These agency theory based mechanisms are also reported as less effective in traditional government agency settings than traditional structural controls (Whitford 2002).

Agency theory is applied here as a tool that accommodates examination of multiple parties' relationships in the application of wildlife management contracts by state wildlife agencies. The literature on state wildlife agencies application of collaborative management approaches include few references to contracted use and suggest that contractors would be viewed more as the stereotypical agent. Accounting data from the CDOW shows collaborative management efforts employing contracts and the frequent use of a small number of contractors is ongoing. Agency theory provides an approach to characterize interview transcript content and explore the extent to which the participants identify with the roles and control mechanisms assumed by the theory. The participant characterizations of agency theory elements may also

provide insight into the informant's attitudes about collaborative management, trust and control elements imbedded in agency theory (Van Slyke 2009).

Methods

Transcripts developed from interviews conducted as part of a case study of collaborative management contracting by the Colorado Division of Wildlife (CDOW) and the Wyoming Game and Fish Department (WGFD) were analyzed by applying an agency theory coding construct. All interviews were conducted under the Colorado State University's Institutional Review Board approved protocol #09-1432H which included written informed consent.

A total of 23 interviews were conducted in Colorado representing the following groups (number of interviews per group in parenthesizes): purchasing administration staff (3), CDOW field staff (4), CDOW program staff (11), for profit contractors (2), non-profit contractors (3). Four WGFD program staff positions were interviewed for comparison and triangulation purposes as well as indications of the extent the CDOW case might be representative or idiosyncratic (Yin 1998, Decrop 1999). Selection of Colorado interviewees began with purposeful selection of the initial interviewees based on contract use data in the agency accounting records and the investigators personal experience. Additional interviewees were selected using a snowball/network sampling approach (Teddlie and Yu 2007) in combination with accounting records. In the Wyoming case, two initial interviews were purposely selected from a list of 2010 professional service contract administrators provided by the WGFD. Two additional interviews were completed based on referrals. Interviews were recorded using a digital voice recorder, transcribed, returned for member checking and imported into QSR Internationals NVivo 9 for coding and analysis.

Interview procedures.– The interview process used was similar in both the WGFD and CDOW with contact and arrangements made following the Research Protocol #09-1432H. The interview format was semi-structured and conversational (Patton 2002b, Glesne 2006). Codes were used to identify the transcripts. The transcripts were provided to the informants to facilitate member checking (Yin 1994, Creswell 2009). General contracting themes explored focused on:

- How extensively were contracts used in the last 5 to 10 years to accomplish service, biological or habitat objectives?
- Why were contractors used?
- Descriptions of the contracting relationships.
- Were issues related to implementation, capacity or boundary management encountered?
- How were capacity, implementation or boundary management needs addressed?

Transcripts were imported into QSR International's NVivo 9 software to facilitate coding and analysis. A fixed deductive coding scheme was developed and applied to the interview content. The coding scheme consisted of three main elements. First, agency theory elements derived from selected literature describing, applying or comparing agency theory in various situations. The main elements contributed to this coding structure are depicted in Table 6.1. In the table, the two main behaviors described in agency relations, adverse selection and moral hazard, are fractured into the descriptors employed by the cited authors and summarized in Table 6.2. Additionally codes were used to identify the principal/s and agent/s referenced, direct references to control of any party or process and references to criteria used to select agents. Moral hazard and adverse selection coded sections were also over-coded to an "other theory" code if the content suggested other theoretical lenses would enhance or improve the

Table 6. 1 Agency theory descriptors used to create agency code set.

Adverse Selection Focus	Citations	Behaviors	Performance	Hidden Information	Information Asymmetry	Professionalism Conflicts	Risk Aversion
Econ[1]	Arrow (1985)			X			
Org[2]	Banks (1995)				X	X	
Org	Barney and Hesterly (2006)			X	X		X
Econ	Dees (1992)	X	X		X		X
PloS[3]	DiIulio and DiIulio (1994)	X	X				
Org	Eisenhardt (1985; 1988; 1989)	X		X		X	X
PAdmin[4]	Goodsell (2004)				X		
PAdmin	Kettl (2000a)				X		
PAdmin	Knott and Hammond (2003)	X		X	X	X?	
Econ	Laffont and Marimort (2002)			X			
Org	Lambright (2009)			X			
PAdmin	Lane (2009)			X	X		
PAdmin	Mitnick (1992)	X		X	X		X
PAdmin	Moe (2006)	X		X	X	X	
Sociol[5]	Shapiro (2005)	X	X	X	X	X	
PAdmin	Van Slyke (2009)				X		
Org	Weimer (1995)			X			
PloS	Worsham and Gatrell (2005)		X	X			

[1] Econ = Economics; [2]Org = Organization; [3] PolS = Political Science; [4]PAdmin = Public Administration; [5]Sociol = Sociology

Table 6.1 Continued.

Moral Hazard Usage	Citations	Goal Conflicts	Hidden Actions	Opportunism	Political Action
Econ	Arrow (1985)		X		
Org	Barney and (2006)	X		X	
Econ	Dees (1992)	X		X	
PolS	DiIulio and DiIulio (1994)		X		
Econ	Dixit (2002)		X		
Org	Eisenhardt (1985; 1988; 1989)	X	X	X	
PAdmin	Goodsell (2004)		X		
PAdmin	Kettl (2000a)		X		
PAdmin	Knott and Hammond (2003)	X			
Econ	Laffont and Marimort (2002)		X		
Org	Lambright (2009)	X		X	
PAdmin	Lane (2009)			X	
PAdmin	Mitnick (1992)	X			
PAdmin	Moe (2006)		X		
Sociol	Shapiro (2005)	X	X	X	
PAdmin	Van Slyke (2009)				X
Org	Weimer (1995)		X		
PolS	Worsham and Gatrell (2005)	X	X		

Table 6. 2 General definitions used in agency theory coding.

Agency Theory Element/Sub-element Descriptors	Description of Coding Criteria
Adverse Selection	The Principal Selects An Agent Who:
Behaviors	Behaves in unforeseen or unexpected ways damaging the principal's interest.
Performance	Fails to perform or performs in a substandard, inconsistent, or unexpected way causing loss to the principal.
Hidden Information	Omits, obscures or avoids providing information important in selecting the agent or actions most beneficial to the principal.
Information Asymmetry	Has more or better information and possesses skills or abilities to apply the information to their benefit.
Professionalism Conflicts	Applies their own professional norms, behaviors, or practices which conflict with or jeopardize the principal's objectives.
Risk Aversion	Has a higher or lower risk tolerance than the principal and acts on them rather than principals.
Moral Hazard	The Agent "Shirks" By:
Goal Conflicts	Pursues individual goals which conflict with those of the principal.
Hidden Actions	Takes actions that are not easily detected and do not benefit the principal.
Opportunism	Uses the relationship or resources available to benefit themselves.
Political Action	Uses political action to influence the principal to benefit the agent.

interpretation of the content. Some interview passages also contain references to two or more coding elements of the agency code framework and were coded for all elements. As a result, some portions of the transcripts are coded for more than one code from the coding structure. The

coding was explored using internal NVivo analysis tools and a thematic analysis process was used to develop theme maps from the structured coding (Decrop 1999, Charmaz 2005, Braun and Clark 2006). The full coding set is summarized in Table 6.3. Coding similarity measured as the codes used and extent of their use between transcripts was analyzed using NVivo's comparison tools. The comparison of coding provides an overall assessment of extent and which transcripts share similar coding characteristics.

Results

Table 6.3 summarizes the sources and occurrences of coding for each main and sub-code within the a priori coding framework. Adverse selection coded sections were found in all interviews with a total occurrence of 389 instances. Moral hazard codes and were recorded in 25 of the 27 interviews occurring in 221 instances. References coded to control occurred in all interviews and the occurrence fell between the frequency of adverse selection and moral hazard coding with 335 occurrences. Passages coded to both agency theory and to alternate theory approaches are found in all interviews with 267 occurrences.

The results of the NVivo coding comparison are presented pictorially in Figure 6.1. The comparison uses Jaccard's coefficient to cluster the transcripts by code frequency (Naumann and Herschel 2010). In the figure, lines are used to connect transcripts with a Jaccard's coefficient value of 0.70 or greater based on code occurrence similarity. This grouping of the transcripts provides a visual depiction extent of coding similarities. The diagram illustrates that a number of the transcripts are related based on the agency theory coding. Note that the Wyoming transcripts are coded similarly to each other but only one has overall code use that is similar to Colorado transcripts.

Table 6. 3 Agency coding structure and coding summary.

Main Code	Sub-codes Aggregated to Main Code	Sources	References
Adverse Selection	–	27	389
–	Adverse behaviors	22	90
–	Adverse performance	21	65
–	Hidden information	23	84
–	Information asymmetry	22	80
–	Professionalism	5	5
–	Risk Aversion	20	65
Adverse Selection CDOW view	–	14	124
Adverse selection- Purchasing principal	–	22	80
Adverse selection- Wildlife principal	–	24	167
Adverse selection Wyoming view	–	4	19
Agent = Contractors	–	24	126
Agent = Government entity	–	10	18
Agent = Purchasing	–	19	88
Agent = Wildlife agency	–	24	116
Agent = NGO	–	14	49
Agent Monitoring	–	26	180
–	Embedded agent	5	7
–	Experience	11	23
–	Expertise	3	4
–	Information cost	17	76
–	Relationships	15	33
–	Reporting	11	18
–	Trust	12	19
Control	–	27	336
–	Authority control	18	63
–	Control of outcome	21	55
–	Controlling Behaviors	21	87
–	Process Control	26	131
Criteria for agents	–	25	168
–	Agent preferences	20	64
–	Agents used for	18	49
–	Agents used when	20	55
Moral Hazard	–	25	221
–	Goal Conflicts	21	91
–	Hidden Action	23	98
–	Opportunism	8	12
–	Political action	12	20

Table 6.3 Continued.

Main Code	Sub-codes Aggregated to Main Code	Sources	References
Moral Hazard – Purchasing principal	–	17	59
Moral Hazard CDOW view	–	14	110
Moral Hazard- Wildlife as principal	–	22	91
Moral Hazard Wyoming view	–	4	16
Non-agency theory	–	27	267
Principal = Contractor	–	7	10
Principal = NGO	–	1	1
Principal = Political	–	12	17
Principal = Public	–	1	2
Principal = Purchasing	–	23	108
Principal = State administrators	–	9	22
Principal = Wildlife agency	–	25	214

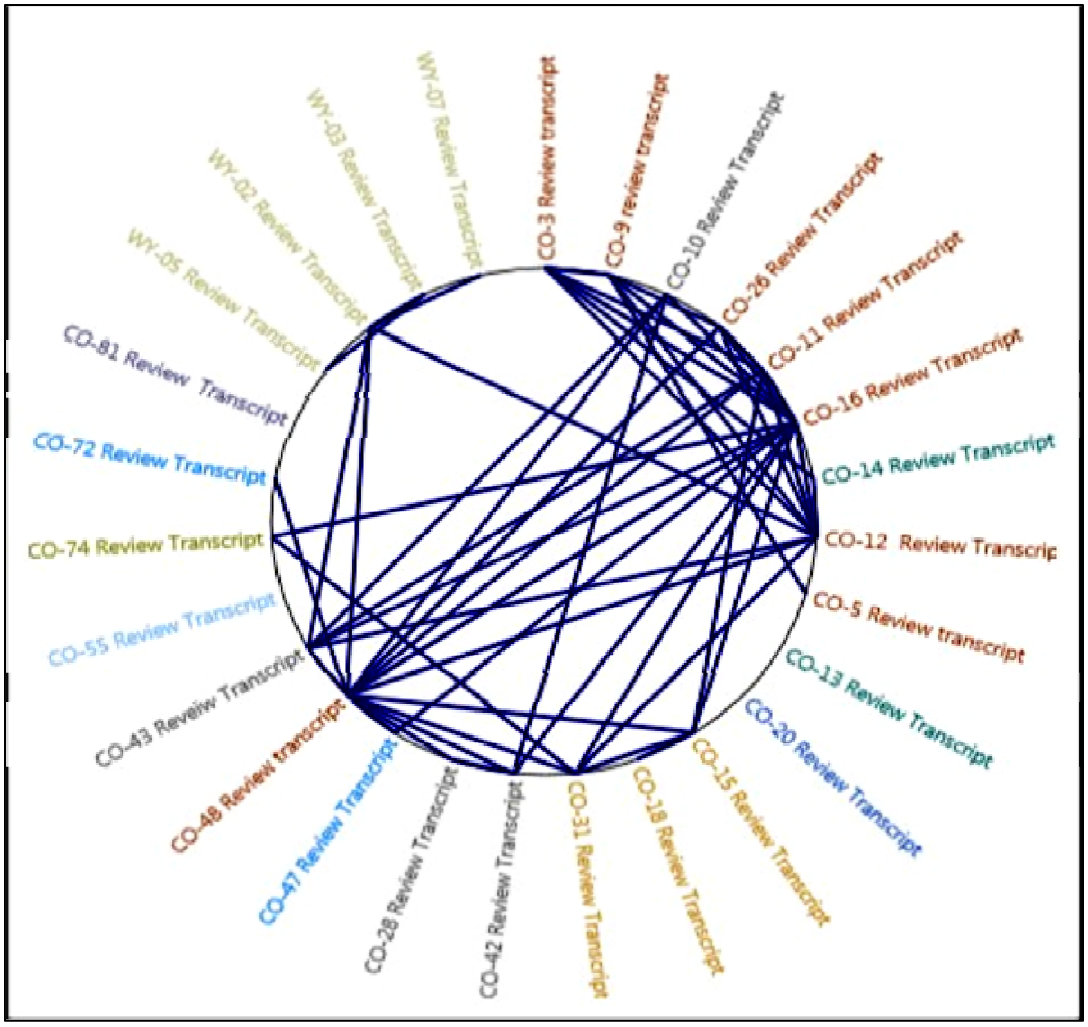


Figure 6. 1 Transcript coding similarity with lines connecting similarly coded documents (Jaccard's coefficient ≥ 0.70).

Content coded to adverse selection and moral hazard varied by informant with the range of occurrence depicted graphically in Figures 6.2 and 6.3. Eleven informants account for 75% of the moral hazard coding and 13 informants account for 75% of the adverse selection coding. Eight individual informants appear in both groups. CDOW informants occur at approximately the same percentage in the moral hazard and adverse selection groups, accounting for the

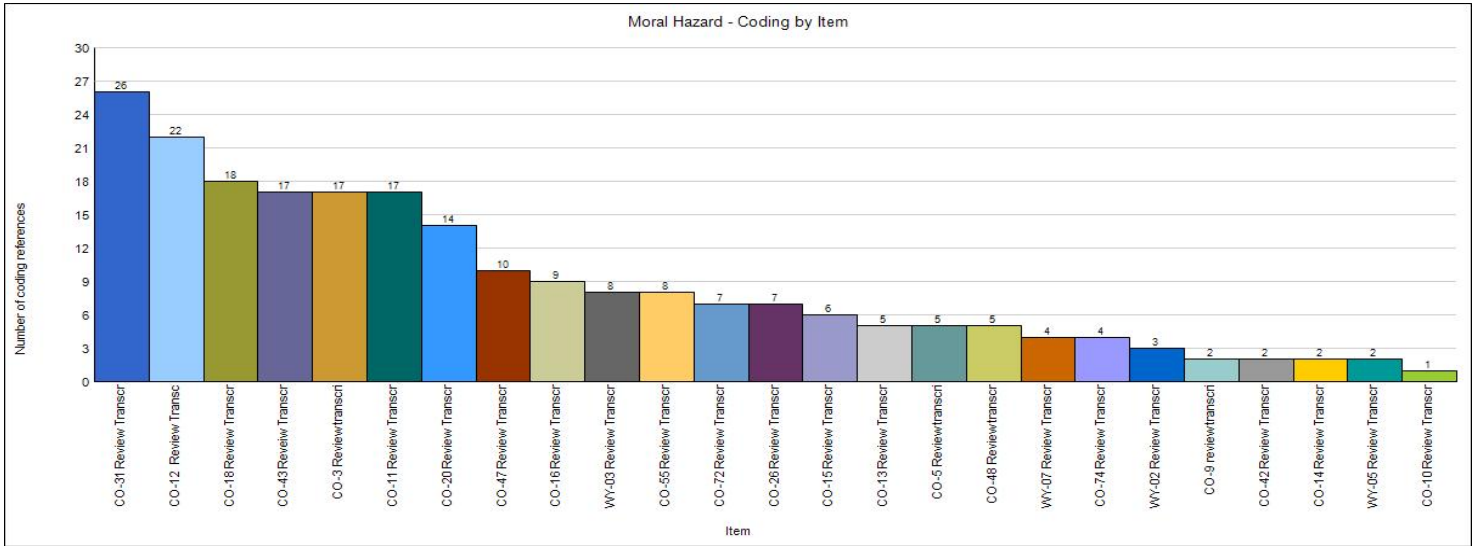


Figure 6. 2 Moral hazard coding frequency by transcript.

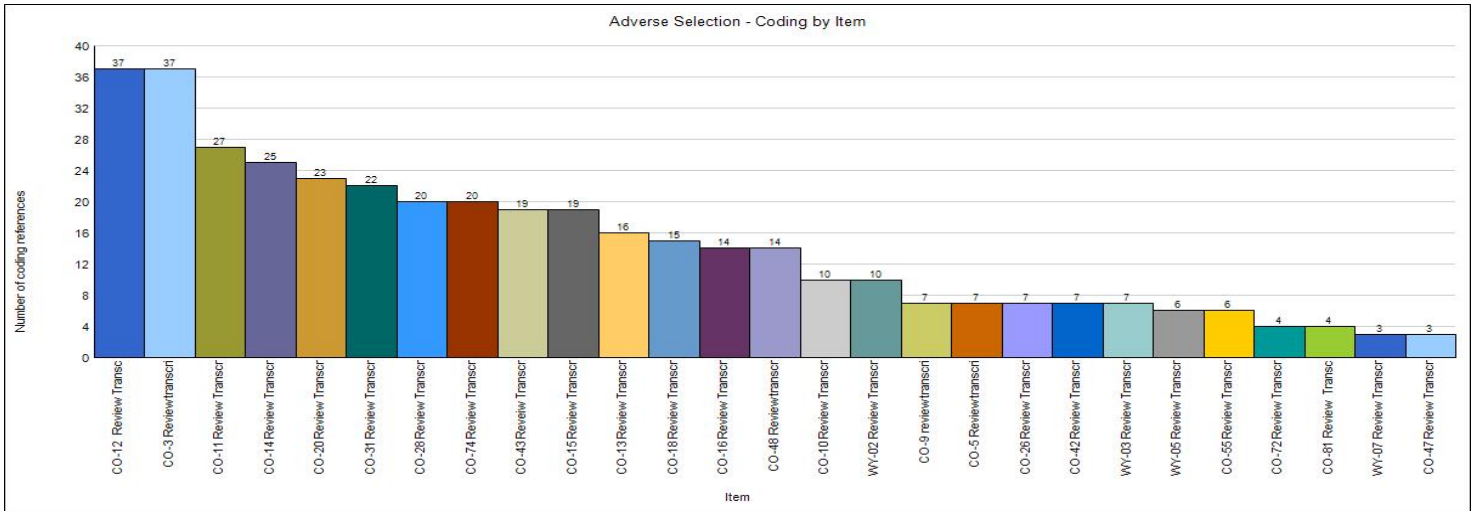


Figure 6. 3 Adverse selection coding frequency by transcript.

majority of the coding for both moral hazard (55%) and adverse selection (69%). CDOW informants constitute 55% of the total informants.

Codes were used to identify the entity referenced as principal and which was the agent during the coding of agency references. Shapiro (2005) notes that agency theory transforms complex relationships by way of "an assumption of methodological individualism" yet Shapiro and other authors note that multiple principals and agents are often present in situations where agency theory is applied (For example; Ross 1973, Dees 1992, DeGeorge 1992, Provan and Milward 2001, Dixit 2002, Worsham and Gatrell 2005, Lane 2009, Kennedy and Malatesta 2010). In the case developed here, the interview narratives often revealed multiple principal and agent relationships with contrasting viewpoints and conflicts depending on which party was or felt they should be considered principal. To capture the change in role and standing in those circumstances, the informants' self identified role and relationship was coded along with agency theory elements (moral hazard, adverse selection, control and monitoring). Table 6.4 summarizes this coding by sources and coded segments separated into specific principal and agent scenarios. Mitnick (1992) noted that agency theory focuses on control or, as he puts it, the "inevitable" loss of control in all principal-agent relationships. Employing control as thematic path into the transcript coding identifies three main principal relationships. One is the control relationship between the purchasing authorities as principal and wildlife staff as the agents. The second reverses the roles by moving wildlife staff to principal and purchasing to agent (Table 6.4). The table also highlights the third agency relationship in the transcripts between the wildlife agency as principal and their contract agents. Note that some configurations of principal and agent have limited coding to agency theory components.

Table 6. 4 Source coding by agency theory area using exchanged principal and agent designations.

Principal and Agent Focus			Agency Theory Area			
			Moral Hazard		Adverse Selection	
Sources	Principal	Agent	Sources	Number of sections[1]	Sources	Number of sections
All	Purchasing	Contractors	2	3	9	18
All	Purchasing	Wildlife	16	51	20	66
CDOW	Purchasing	CDOW	10	38	2	3
WGFD	Purchasing	WGFD	3	5	4	8
All	Purchasing	NGO	3	3	4	5
All	Wildlife	Purchasing	10	31	13	51
CDOW	CDOW	Purchasing	6	24	9	43
WGFD	WGFD	Purchasing	0	0	2	2
All	Wildlife	Contractors	19	37	20	90
CDOW	CDOW	Contractors	12	29	13	70
WGFD	WGFD	Contractors	2	2	3	8
All	Wildlife	NGO	10	25	7	25
CDOW	CDOW	NGO	5	11	4	9
WGFD	WGFD	NGO	2	4	0	0

[1] Coded sections of individual transcripts may appear in more than one category due to multiple concepts in a response or from exchanging the role of principal and agent.

The distribution of coding between the main principal-agent combinations for moral hazard elements, adverse selection elements and monitoring preferences are visualized in Figures 6.4, 6.5 and 6.6. Each depicts the occurrence of sections coded to individual elements making up moral hazard and adverse selection (Table 6.1). Monitoring and control elements are those indentified in Table 6.3 by various authors. Monitoring references are less frequently encountered in the transcripts and are reflected in the lower occurrence rates (Figure 6.6). Figures 6.7 and 6.8 group selected moral hazard and adverse selection excerpts from purchasing staff and wildlife staff and display them as side-by- side contrast of principal's view of the main agency theory components.

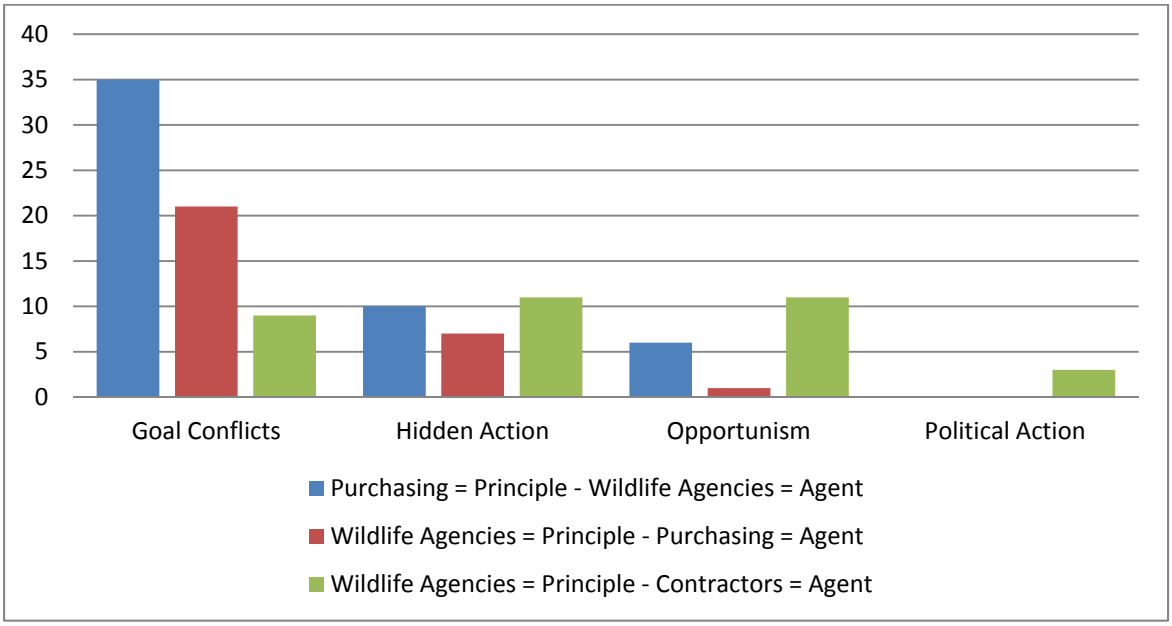


Figure 6. 4 Moral hazard coding occurrence in all transcripts.

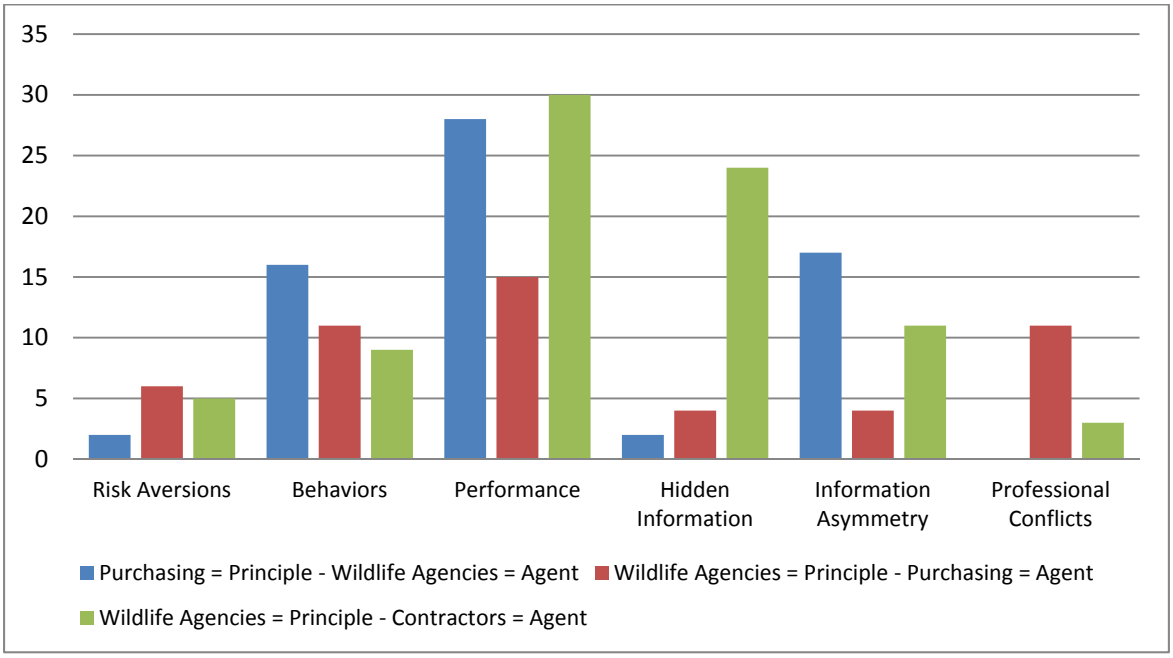


Figure 6. 5 Adverse selection coding occurrence in all transcripts.

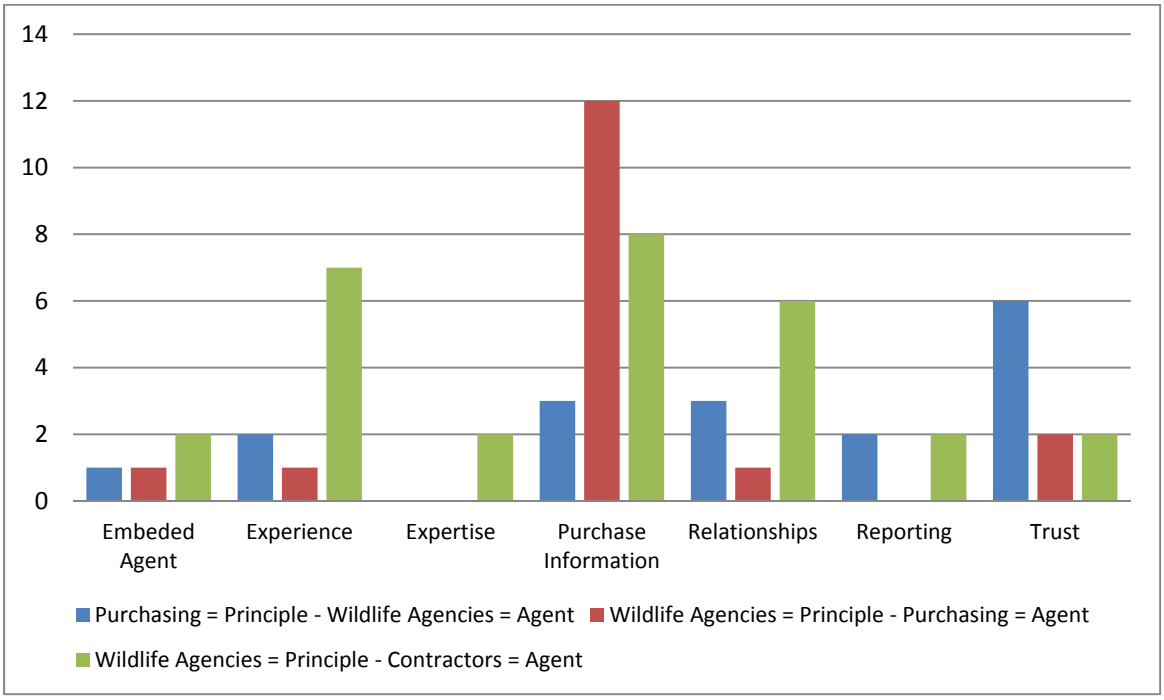


Figure 6. 6 Monitoring method occurrence in all transcripts.

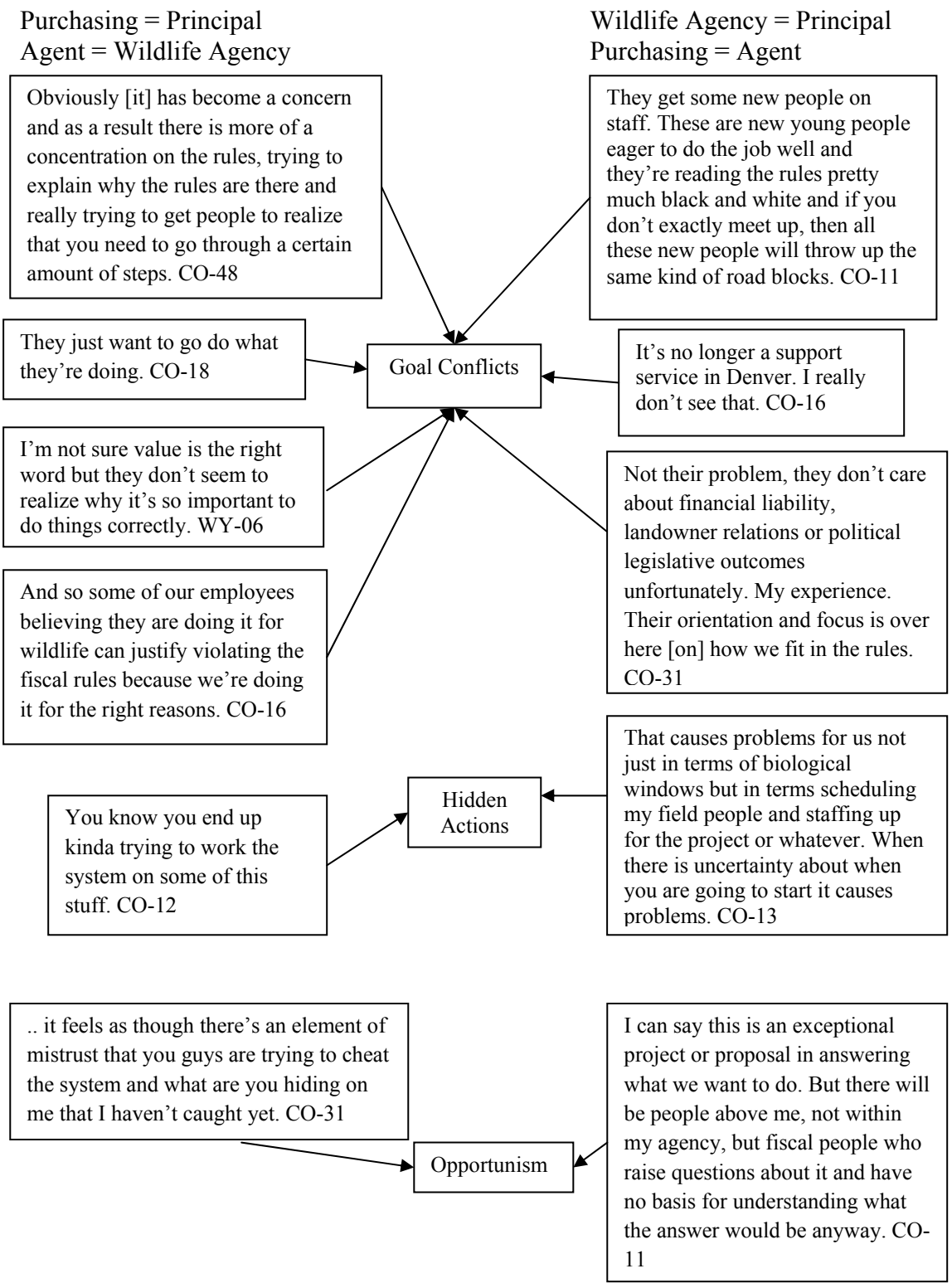


Figure 6. 7 Moral Hazard elements from differing principal agent perspectives.

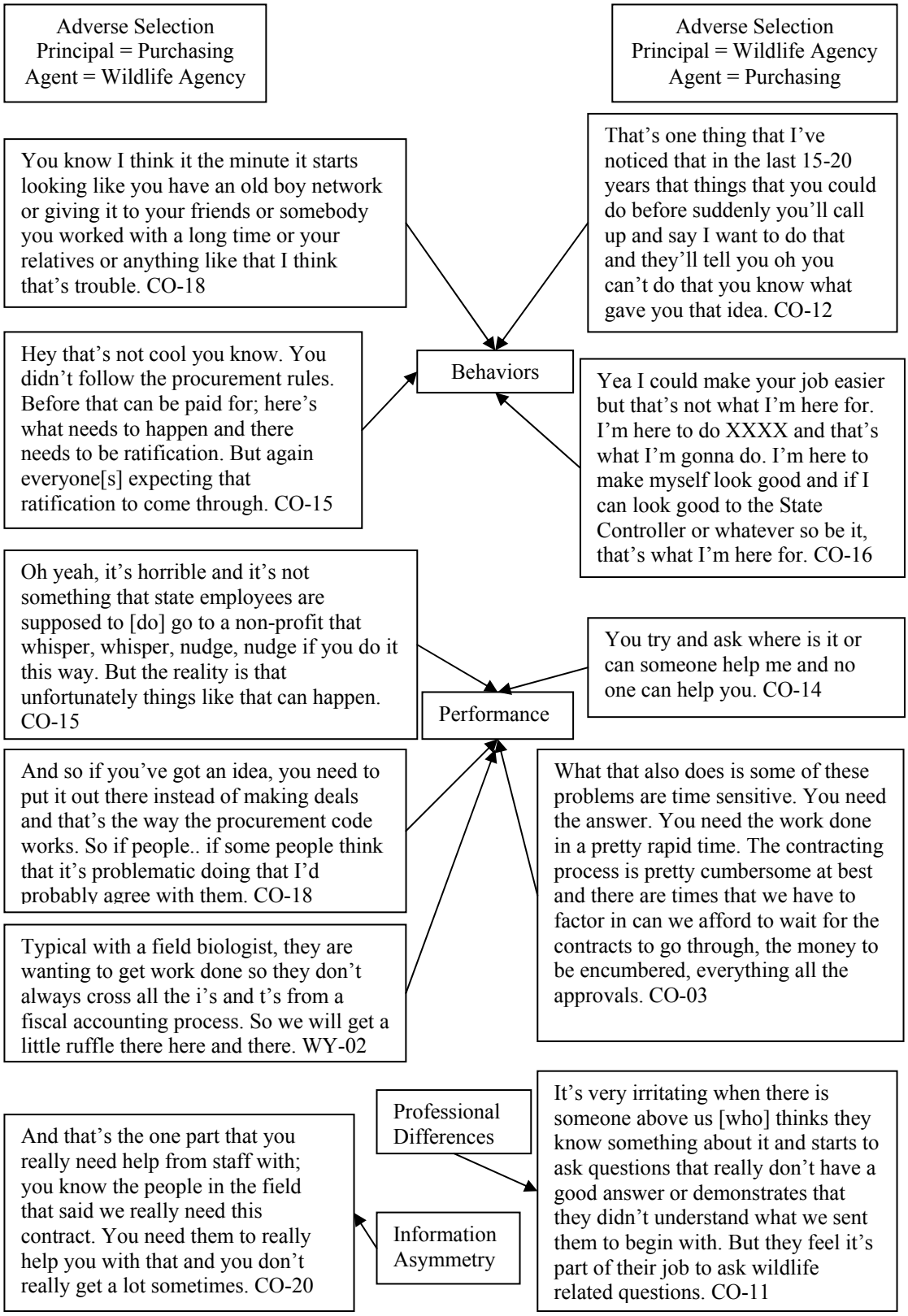


Figure 6. 8 The three most frequently occurring adverse selection elements from different principal-agent perspectives.

Figure 6.7 demonstrates through the comments that the main moral hazard element identified in the agency relationship between purchasing and the wildlife agency arises from the goal conflicts between the purchasing and wildlife management functions. It should be noted that in both the CDOW and WGFD significant amounts, but not all, of the purchasing functions and authorities are located within the same departments. The transcripts offer numerous comments that identify the conflict and frustrations of wildlife staff with contracting requirements. The frustrations focus on the purchasing process requirements and often the purchasing staff who are sometimes characterized as impediments to accomplishing assigned tasks and agency objectives. In the words of one respondent:

> "And so they just look at it as that annoying agency that is keeping them from doing things." CO-20[3]

Those charged with purchasing express frustrations with wildlife staff's lack of attention to contracting or procurement. Goal conflicts between wildlife agency staff and procurement staff were widely mentioned and in some cases strongly expressed. As one Colorado respondent summed up the conflict:

> "That(s) just an administrative function but they are both statutes. So it isn't, given my personal opinion is, it's not given the importance that it is due. There is personal liability, somebody can write a $13,000 check. It's going to take one employee to write a $13,000 check or whatever their statutory violation is. I honestly think that needs to happen at some point. I can't tell you how many times I've processed a statutory violation going 'they know; they just did it'. It's easier to ask forgiveness than ask permission is what I hear." CO-15

The tensions arising from the conflicting goals of wildlife staff and procurement staff as the primary source of agency conflict given the low occurrence of hidden actions and opportunism elements compared to the occurrence of goal conflicts. The lack of references to political action

[3] All informant comments are edited to add punctuation, delete repeated words and verbal tics. Words added for readability are identified by [ ].

in the agency relationship of the wildlife-purchasing staffs is likely related to the shared government and departmental status of both entities.

Comparing the Colorado Case to the Wyoming Case does not suggest significant differences in the perspectives of CDOW and WGFD employees. While the number of transcripts from WGFD is fewer and the total coding to moral hazard elements occurred only in the purchasing as principal reading. However, the WGFD coding patterns are similar to the CDOW moral hazard coding and content was also similar. An example from Wyoming echoes the CDOW participant's identification of the role and goal dichotomy:

> "It's very easy, especially when you're a field biologist you know or a field biologist supervisor like I was for the majority of my career, to become frustrated. It's like: 'you guys should just make my life easy you know? Here's what I need you to do. How come we can't make that work you know?' You get back because the auditor, you know, it's illegal for state statute or the auditor says we can't do it like that. And so: 'Whatever, I just want it done so I can go on to deal with wildlife not deal with fiscal paper work.'" WY-05

Adverse selection coding based on purchasing and wildlife staff views repeat the different goals and outlooks influences. Figure 6.8 provides selected text coded for the top three adverse selection elements. In the adverse selection, the two most frequently coded elements regardless of the assigned principal role were behavior and performance elements. The third most frequently coded element was asymmetrical information with purchasing as principal and professional differences when wildlife was used as principal. The adverse selection comparison shows the impact of the goal and objective conflicts are detected in the coding of behavior and performance concerns. These differences appear regardless of the location of the purchasing function. Behavior and performance features are found in the WGFD where the purchasing functions are a part of the agency and in the CDOW where the purchasing function is distributed between CDOW and the Colorado Department of Natural Resources of which it is a part. The

CDOW's and WGFD's perspectives are similar as one informant's comments voice the general theme running through the wildlife agency and purchasing agency relationship in both states:

> "I think wildlife people typically see fiscal people as impediments to them getting their jobs done. Fiscal people see wildlife people as sloppy and they don't care." WY-05

Contractors as agents.– Wildlife agency perception of contractors shows that moral hazard is a less frequent concern than are adverse selection issues (see Figures 6.4 and 6.5). The moral hazard elements of goal conflicts, hidden actions and opportunism occur at almost equal rates. Political action was mentioned infrequently and in the context significant departures from expected agent behavior. Most moral hazard occurrences originated from a limited number of informants. The combination of the limited number of moral hazard references in total and the small number of transcripts referencing moral hazards in contractors suggest moral hazard is either less common or less likely to be identified by wildlife agency staff. The limited occurrence of moral hazard references in the WGFD interviews restricts comparison of the two agencies. However, the few references generally contain similar content. Example statements drawing from one of the stronger voiced statements on hidden action, opportunism and political action follows:

> "We have had contractors that have sort of inserted maybe some bias into their reports or opinions. That's less than beneficial to the agency." CO-03

> "That had sort of reached a point where everybody was assuming there was good work being done. And then you dug into it just even a tiny little bit you realized that the work that was being done was minimal [and] was counter to what the Division's mission was." CO-03

> "We've had people that we actually had contracts with for years who went down in the legislature and testified against the agency." CO-03

Adverse selection was the focus of the majority of the wildlife agency as principal and contractors as agent coded content. Figure 6.9 provides a sample of comments related to the

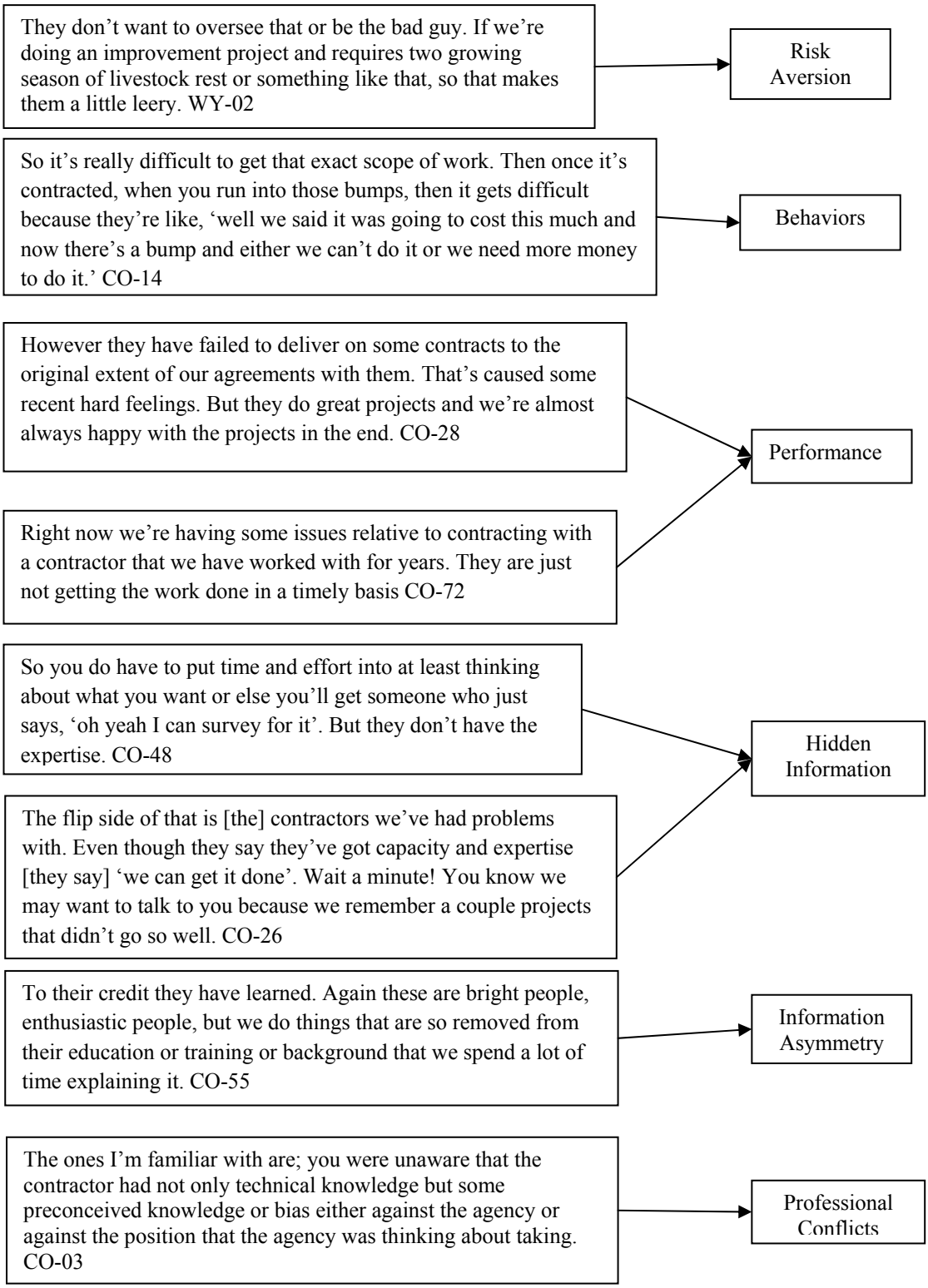


Figure 6. 9 Examples of adverse selection elements- state wildlife agencies as principal and contractors as agents.

factors previously identified as adverse selection. Most references to adverse selection relate to performance issues of poor performance or hidden information about either contractor capabilities or using practices that hinder contract evaluation and outcome assessment. The coding identifies a preference for experienced contractors with existing relationships where monitoring is by purchasing information. Purchasing information in this context is characterized by the informants as spending more time administering contracts, coordinating, inspecting and monitoring the contractors work. A limited number of references are made to trust, expertise, use of reporting and embedded agents as monitoring approaches (see Figure 6.6).

Agency elements.– The agency code transcripts of procurement and wildlife staff (see Figures 6.4 and 6.5) viewed through the agency theory lens is one in which goal conflicts (moral hazard) predominate and is echoed in the adverse selection coding where the thematic elements of adverse behaviors, performance, information asymmetry and professional conflicts are interpreted as manifestations of the goal conflicts. Since both wildlife and procurement are elements of the state, conflating the agency issues into an overall goal conflict theme provides a different vantage point from which to interpret agency coding results. In this interpretation, the parties have three general goal sets which are informed by the legislative charge, administrative goals and profession based goals. The differing goals in these three areas inform the administrative and professional boundaries the participants assume and are captured in the agency coding. Implementation and capacity needs are expected to be impacted and are reflected in informant comments. Examples from Colorado informants that broadly illustrate the suggested links in the legislative and administrative goals areas are:

- Changes in roles of purchasing staff lead to increased demand for support documents.

- Delegation of new authorities to the procurement staff negatively impacted past relationships and cooperation.
- Partial delegations of authority from the Colorado State Controller changed the responsibilities/reporting relationships, noted by some informants as putting more distance and barriers between the wildlife agency and the procurement and contract administration staff.
- A shift to a risk reduction- risk avoidance procurement philosophy disrupts or eliminates familiar procurement processes.
- Changes in policy and statute (for example changes to Colorado Revised Statute Title 24) impact agency operations, contract administrators and added new procurement requirements without added resources.

Wyoming participants also identified changes in approval practices and contract justification requirements following rule changes and political direction. Universally participants noted state contracting has steadily become more rule and process oriented and has created new interpretations, forms and enforcement requirements which reduce the ability to implement collaborative management and requires increased capacity to maintain current uses. The tone of the participations is illustrated by:

> "I would just, you know, I'd like all the people in the Division to see us more as a partner than as an enforcer." CO-18
>
> "It's difficult to see where you have a hand in hand working relationship. Trying to get a project done as compared to: 'you're a square peg and I'm the round hole and I'm going to pound you into it and you're going to fit into this' and that kind of stuff." CO-31
>
> "It just seems that what I see in Wyoming and Colorado is maybe almost a lack of trust of the contractor and the state biologist or a lack of communication." CO-42
>
> "Oh yeah it is a lot more difficult than it was, like I said, even 10 or 15, 20 years ago. And you know before you could have got on the phone and called somebody down at the

> controller's office and said, 'Hey you know what? I need this contract for whatever it is, [with] Ducks Unlimited and we could get it accomplished.' You don't get that done any more." CO-16
>
> "It doesn't seem to matter now. We just seem to be getting more and more strict in our fiscal responsibility and due diligence at every level. That [and] there's no trust until the state controller says 'OK let's do this'. Everyone seems to be covering their piece of the action by putting up road blocks and stuff or asking questions that really don't pertain." CO-11

Wildlife agency staffs display a different perception of contractors illustrated by the lower occurrence of moral hazard coding with adverse selection coding occurring at almost double the moral hazard coding amount. The moral hazard elements coded reflect an essentially equal distribution of references to goal conflicts, hidden action and opportunism. Political action, defined as use of political actors to influence the principals for the benefit of the agent, was not coded in the purchasing and wildlife principal-agent role comparisons. Political action was identified in a few instances in the case of contractors as agents. Wildlife agency staff more frequently identified adverse selection elements coded as performance problems or hidden information with contractors. Coding of information asymmetry, risk aversions and professional conflicts were found but at rate less than half of those in performance or hidden information. Monitoring of contractors was most frequently coded to experience or past relationships with the contractor and purchasing information which largely means spending time with the contractor in this context. The transcripts also note long term, continuing relationships between some contractors and the wildlife agencies. Taken together the wildlife agency coding suggest that moral hazards or "shirking" by contractors is less frequent encountered but performance issues captured in the coding as performance problems or hidden information occur more frequently. The moral hazard and adverse selection configuration appears to match the monitoring method preferences identified which are based on knowledge of the contractor based on past experience

or procuring information by spending time with contractors. Spending time with the contractor also facilitates building experience. This configuration would facilitate development and maintenance of a preferred set of contractors which share some agencies objectives and whose performance is predictable and reinforces past experience.

The number of experienced or suitable contractors surfaces in other contexts not directly included in the agency coding. References to the limited number of acceptable or suitable contractors occur regularly in wildlife agency staff transcripts. Examples from some of the transcripts are:

> "The thing is we have a pretty limited range of people that we contract with. I mean it's primarily universities and then like a handful of NGOs that can do the work. There are some specific natural resource related consulting firms that we've done work with too. But it's a pretty narrow band and, you know, the conflicts arise more with NGOs [more] that anything else." CO-72

> "I use the appraiser side of it. There is a fairly limited number of appraisers who actually have the expertise to appraise conservation easements. So you have a very limited pool of consultants from which to pull from." CO-09

> "The other thing is there's only so many. The state of Wyoming is kind of a smaller state and so there's also a limited number of the people that do any one certain type of work in the wildlife arena." WY-07

The combination of low numbers of "acceptable" wildlife management contractors and some regularity of wildlife agency contracting would lead to contractor-agency familiarization and ongoing relationships. Relationships and experience reduce but do not eliminate moral hazard problems for the wildlife agency. Lower rates of moral hazard associated with contractors who are known and with which the agency has an ongoing relationship with is consistent with the coding (Figures 6.4 and 6.5) and the monitoring approaches described (Figure 6.6).

Discussion

The interview transcripts were subjected to a structured a priori agency theory coding protocol for exploratory purposes. The interview transcripts were not solicited to develop or facilitate an agency theory analysis line of inquiry. The interviews focused on state wildlife agencies use of collaborative management contracts to accomplish address wildlife management needs. However, issues found in the interviews and associated with content about capacities, procurement requirements and shifting responsibilities suggested agency theory would provide insight challenges in collaborative management implementation using contracts. This use of agency theory to explores collaborative management implementation by focusing on procurement and wildlife as individual entities rather than as a consolidated state actor. Similar approaches are found in business applications, while in governmental settings a consolidated principal and agent formulation is often used (Eisenhardt 1989, Shapiro 2005, Kennedy and Malatesta 2010). The relationships revealed by this analysis provide insight into internal state wildlife agency implementation capacity issues.

Characterizing the principals and agents.– State wildlife agencies describe their contracting environment as one where "suitable" wildlife contractors are limited in number and whose capabilities and performance are known to them. The wildlife agency, as principal, uses this knowledge and experience to mitigate moral hazards. Contractor knowledge is based on relationships that are often long term and with ongoing contracting relationships. These characteristics suggest that transaction cost economics or control of vendors via incentives as used in transaction cost or agency theories may not adequately capture the wildlife agency-contractor relationship. A relational contracting theory approach (Brown et al. 2006, Van Slyke 2009) may provide a richer characterization of the interaction which is described as a

relationship by the state wildlife agencies. Conflicts with contractors are largely performance related and the content suggest are often successfully addressed. Contractors are also described as often sharing agency goals. This characterization of the wildlife contractors suggests wildlife agencies do not view contractors through an agency theory lens. Dependency on a limited number of "capable" wildlife contractors provides added experience with the contractors further reducing agency type problems.

Agency theory related issues arising from the purchasing staff and wildlife agency staff content is interesting, particularly since in both the Colorado and Wyoming settings, significant elements of the purchasing functions are internal to the departments. While other State departments retain oversight, significant delegations of procurement authority have been made to the departments housing the wildlife agencies. Each state's procurement functions reflect the basic political and financial control functions found in state government procurement processes. The literature suggest that the formal controls of the procurement and accounting systems designed to promote government accountability (deLeon and Varda 2009) often come into conflict with collaborative management approaches (Agranoff 2007). This analysis supports this observation.

The agency's staff identified the principal's role to the functional unit of purchasing or wildlife management rather than a consolidated "state" principal in the interview content. The resulting conflict over primacy of legislative charge plays out in the contract implementation process. Independently wildlife contractors confirm the conflict between procurement and wildlife. Contractors generally identify the wildlife agency as the principal and purchasing as a powerful agent whose actions are independent of the wildlife agency's desires or direction and whose demands must be met. Contractors describe unforeseen negative outcomes over which the

wildlife agency exerts little or no influence as part of the contract process. This characterization further supports the interpretation that contractors consider view the interaction with the state wildlife agency as a collaborative relationship rather than agency theory's self-interest agent description.

The procurement-wildlife agency relationship is captured in conflicts over goals with performance and information concerns arising from the goal conflicts. The results and interview content point to a power conflict about which goals, procurement's or wildlife's, are served. Control over the use and decisions on contracts are present. Control is the basis of agency theory formulations (Mitnick 1992, Van Slyke 2009). Enforcement of rules is noted as desirable from the procurement view. The results suggest that the procurement and agency staff apply an agency theory framework in defining the power components of their relationship, where the principal sets the goals of the relationship and the agent is expected to comply. In other aspects of the relationship, agency theory elements are reduced or absent as the case of procurements relying on trust as a monitoring approach while wildlife relies on information gained from spending time. The less intensive monitoring approaches also fit with the interdepartmental setting. Collaboration is not surface as conflict reduction approach suggesting the contested elements could be mitigated to some degree by appropriate management intervention.

Agency theory and collaborative contracting.– The multiple parties involved in wildlife management contracting highlights the reality that employing agency theory to methodologically collapse multiple parties into unitary entities of principal and agent oversimplifies the number of parties involved in design and implementation of complex wildlife management programs using collaborative management contracts. The concept of multiple principals and agents in collaborative programs has been noted in a broader context (Milward and Provan 2000). These

findings located at the implementation level reveal tensions between state wildlife agencies and procurement staff that are rooted in formal contract control and accountability needs and the wildlife agency's approach to collaborative management contracts with their trusted contractors. The content also points to the impact of devolution of authorities on state agencies. The content notes that delegation of some authorities held by the state controller were made to the procurement staff. Wildlife staff noted negative changes in the relationship were a result of the authority change. Future exploration of these types of delegations could provide more detailed understanding of the impacts from authority delegations.

A more complete picture of the contact administration and contractor relationships may be available by application of other analysis frameworks, particularly considering the internal purchasing and wildlife staff elements and the long term nature of many contractors -state wildlife agency relationships. Adding policy network analysis approaches, such as those identified by Bartelli and Smith (2010) or Agranoff (2007) would be one approach to deepening the analysis. Institutional theory approaches after those of Zietsma and Lawrence (2010) would provide a different analytical insight into the boundaries established around purchasing and wildlife management functions that support the existing system. Intuitional theory consideration of the wildlife agencies and their favored contractors could expand on the role of relationships and professional influences.

Limitations.– The use of transcripts from interviews conducted to address questions related to use of collaborative contracts rather than exploring agency theory elements may bias the coding results. Representation of agency theory relationships may be influenced by the interview focus. The multi-principle reading used is dependent on the coder's interpretation of the interview content which could be influence in undetectable ways by personal experiences

with the parties. Knowledge of the interviewer's background and experience may have directly or indirectly influenced the informants as well. The extent to which past experience and personal relationships may have influence interview content and the agency theory coding is not known.

The use of an a priori coding structure limits the extent of coded materials to the established codes. In this study the coding structure is not viewed as a significant limitation. However the constrained code set excluded other potential coding structures. As the results and discussion report, other theoretical approaches could deepen the understanding of the relationships. This study applies agency theory at the intra-departmental level of state government. This approach is not widely applied in government settings but is reported by some authors in business settings. The approach highlights the conflicts and tensions within state government departments with formal contract control responsibilities and the need to implement collaborative management using contracts. Areas for future research consideration is the tensions created by the accountability requirements of grants received by state wildlife agencies which are then used in collaborative management contracts with third parties and the impacts of authority delegations previously noted.

7) THE INFLUENCE OF PROCUREMENT SYSTEMS AND INSTITUTIONAL CHARACTERISTICS ON COLLABORATIVE MANAGEMENT CONTRACTING BY STATE WILDLIFE AGENCIES

Synopsis

This study focuses on the factors influencing state wildlife agencies decisions to use contracts for wildlife management purposes. It was hypothesized that state wildlife agencies would apply agency or profession specific factors in decision on the use of collaborative management contracts. Interviews with state wildlife agency employees and contractors were used to explore wildlife management contracting as part of a case study of a state wildlife agency. The interview content was explored employing an approach based on grounded theory methods. Two themes emerged from the interviews as important influences of contract use. One, a systemic theme, includes influences of legislation, budget and procurement policies and available contractors which are largely outside of the state wildlife agency's control. The second, an institutional theme, includes socially constructed realities about the relationship and role of procurement processes, norms related to control and wildlife management and the influence of professionalism. A contract implementation decision model in which these themes operate is developed from informant descriptions.

State procurement staff and the agencies contractors provide support for elements found in the state wildlife agency institutional theme and decision model. CDOW accounting data for professional service contracts, contract numbers and frequency of vendor use are reviewed and contrasted with the systemic and institutional themes. The contract use record provides evidence of the influences of the systemic and institutional themes influence on the contract types and vendor preferences. A smaller confirmatory case study based on interviews of employees of the

WGFD supports the thematic influences from the CDOW case study. The hypothesis that state wildlife agencies apply wildlife profession specific norms and boundaries to decisions about contract use in collaborative wildlife management is supported by the informant materials and records of contract use.

Introduction

Wildlife management in the United States is based in the legal principles of the public trust doctrine in which wildlife ownership is held by "the people" and managed on their behalf by the states and the federal government as trustees. From this legal foundation, today's state wildlife management agencies arose and developed during the progressive era. They exhibit professional management and instrumental/normative objectives which are characteristic of natural resource agencies arising during the period. State wildlife agencies are funded by various user pay approaches and have historically addressed increased service demands by adding professional staff. However, the public trust doctrine provides authority to state wildlife management agencies to manage wildlife populations but does not include authorities to manage the habitats on which wildlife depends. Critiques of public trust doctrine have noted the limits of the professional management model of the agencies and the poor record of habitat management and protection in particular (Buck 2009, Jacobson et al. 2010). The need to expanding use of collaboration and partnerships in wildlife conservation efforts, including sharing of authority or resources to address complex management problems, has long been noted (Trauger et al. 1995).

Shifts in public attitudes toward government size and increased desirability of market-driven services have lead government agencies to increase indirect service provision using various collaborative management approaches largely implemented by contract. In light of the unique development path and historical backgrounds, state wildlife agencies are hypothesized to

apply profession specific criteria in decision on use of collaborative management contracts. Collaborative management contracts are defined here as contracts for wildlife management services or grants for wildlife management purposes. Factors influencing the use of wildlife management contracts and contractors are explored in this case study of a state wildlife management agency. The following questions are considered:

- What are the main influences on decisions to use collaborative management contracts in state wildlife management?
- How are decisions to use collaborative management contracts made and does the process influence implementation?
- Do capacity or boundary considerations influence state wildlife agency use of collaborative management contracts and how?

Literature Review

The characteristics potentially denoting state wildlife agencies as unique governmental entities include:

1. Management responsibility for public trust resources,
2. Legal origins are a shared foundation in all state wildlife agencies,
3. Fiscal resources linked to founding principles and conditions,
4. Progressive Era ideologies of professional management and efficiency,
5. Employees largely trained and developed through programs designed by the professional elites and the agencies leaders.

Each factor is briefly reviewed in the following sections.

Public trust doctrine and the Progressive Era.– Freyfogle and Globe (2009) note that perhaps the single most interesting feature of wildlife in America is the legal position of wild

animals as owned by the people with the individual states as trustees. This status dates to the success of the American Revolution, as American law coalesced into a uniform legal doctrine vesting citizens as beneficiaries of a public trust ownership of wildlife managed by the states (Sax 1970, Freyfogle and Goble 2009, Bacheller et al. 2010). The public ownership and trustee elements have been upheld by courts up through the U. S. Supreme Court (Sax 1970, Bean and Rowland 1997, Connolly 2009, Freyfogle and Goble 2009, Bacheller et al. 2010, Bruskotter et al. 2011). State laws and state and federal court actions continue to affirm the legal concept of the wildlife as a public trust resource under state management with federal jurisdiction over treaties, interstate commerce and endangered species (Freyfogle and Goble 2009, Bacheller et al. 2010). Trustee responsibilities do not transfer below the state level creating a wildlife management authority dyad.

Samuel Hays' (1959) overview of the conservation movement during the Progressive Era notes professionalism and technical management of natural resources was a mutual goal of government officials and conservation organizations (Gonzalez 1998). Rational technological management favored by conservation groups complemented the government's desire for efficiency. The resulting natural resource management construct was instrumental and normative with the government as the collective authority using professionally trained managers as the implementing agents (Adams 1992, Mullner et al. 2001, Nie 2004a, Dryzek 2005). Conservation groups along with other interest supported and pushed for changes in wildlife law, the expansion of wildlife programs and employing professional wildlife management techniques (Hays 1959, Gonzalez 1998, Brown 2010).

State wildlife management.– State management of wildlife prior to the mid-1800s was generally accomplished through statutory restrictions on the take of selected species or the

manner or timing of take. Distribution policies were set by state legislatures and accompanied by limited enforcement as few states had "game wardens" (Leopold and Brooks 1933, Bean and Rowland 1997, Sherblom et al. 2002, Freyfogle and Goble 2009). In Colorado's case, the first state legislature established a State Fish Commissioner and a set of fisheries-related laws in 1876 (Barrows and Holmes 1990). In 1891 the legislature enlarged the State Fish Commissioner position into the State Game and Fish Commissioner and added the first wardens as state employees (Barrows and Holmes 1990). Similar founding timeframes during the Progressive Era are found in other states' wildlife agencies as well as increased employment of professional wildlife managers (Williamson 1987).

The wildlife management profession.– The beginning of wildlife management as a profession is generally located in the 1930s and attributed to government demand for wildlife management professionals in the newly created technical management positions (Leopold and Brooks 1933, Swanson 1987). Brown (2010) notes Aldo Leopold was named the first professor of wildlife management at the University of Wisconsin in 1933. Leopold is also credited as one of the key leaders in efforts to establish wildlife management as profession (Organ et al. 2001). The 1935 federal legislation establishing the Cooperative Wildlife Research Units as a joint federal, state and university program for wildlife research and training and is an instrumental contributor to the wildlife profession's development (Poole and McCabe 1987, Organ et al. 2001). The Wildlife Society, the profession's scientific and professional organization, was formed in 1937 by Leopold and others with a charge to develop and further professional management of the wildlife resource (Swanson 1987, Organ et al. 2001).

Institutional characteristics of state wildlife management.– Geist et al.'s (2001) presentation at the 66th North American Wildlife and Natural Resources Conference was not the

first discussion of what is called the North American model of wildlife management (the model), but it is perhaps the best known. The model incorporates a range of normative elements including the public trust doctrine, professional management and the user pay financing of wildlife management. The model is a conflation of wildlife management history and delineates a set of boundaries around future wildlife management policy options (Geist et al. 2001, Organ et al. 2001, Jacobson and Decker 2006, Dratch and Kahn 2011, Lepczyk et al. 2011, Nelson et al. 2011). Different authors opining on the model contest the alternate futures of wildlife management, however, the unique characteristics of state wildlife management summarized by the model literature is not contested.

Other writers have characterized the wildlife management profession and wildlife agencies as institutions (Mullner et al. 2001, Jacobson 2008b, Buck 2009, Decker et al. 2011). This characterization follows DiMaggio and Powell's (1991), Scott's (1995) and Lawrence and Suddaby's (2006) descriptive characteristics of institutions as having: regulative elements (i.e. formal rules and laws); normative elements (i.e. values and norms); and cultural-cognitive elements (i.e. what people in the institution know and their socially constructed reality). Gigilotti et al. (2009) argues institutional elements directly influence people to adopt specific management paradigms. The paradigms establish boundaries and inform how problems are framed as well as the acceptable methods, tools and behaviors applied inside the paradigm. Gigilotti et al. (2009) apply the paradigm approach to wildlife agencies. Path dependency (Greener 2002) effects of history, legal frameworks and professional training strengthen the wildlife management paradigm which is reinforced by communication between state wildlife agencies (Nie 2004a, Buck 2009, Jacobson et al. 2010). Professionalization and specialization in agency wildlife

employees would also be expected to contribute to increased institutional similarity (Meyer and Rowan 1977, DiMaggio and Powell 1983, Bartley et al. 2008).

Contracting tools and challenges.– Governments' role in delivery of services and products has evolved rapidly over the past 40 plus years from direct service provision into what has been termed "governance" which includes the use of service contracts, grants and other indirect service provision "tools" implemented via contracts (Salamon and Elliott 2002). Collaborative management is often linked to initiatives to improve services, governmental efficiency, or both without increasing the number of government employees (Frederickson 1996, Rhodes 1996b, Gilmour and Jensen 1998). Expanded use of contracts and contractors is noted for creating policy, accountability and management dilemmas at all levels of government (Salamon 1981; 1987, Frederickson 1996, Kettl 1997, Gilmour and Jensen 1998, Kettl 2000b, Salamon 2004, Kettl 2006). Discussions of contract use often invokes devolution of public policy as a component or a cause for contract use. Devolution generally refers to the concept of relocating governmental authority and decision levels from central government agencies to lower government levels or non-government entities which incorporates outside parties into government action via contracts (Ellwood 1996, Auger 1999, Gainsborough 2003, Goodsell 2004, Romzek and Johnston 2005) and introduces market based approaches and incentives into government operations (Ellwood 1996). Regardless of the rationale, devolution leads to increased contracting (Christensen and Lægreid 2001, Van Slyke and Roch 2004, Romzek and Johnston 2005). Mutter et al. (1999) reported that devolution of federal natural resource policy making and regulatory authority to the states had not occurred. Yet Coggins' (1999) article, which is critical of devolution of land and environmental decisions by the U.S. Forest Service, Department of Interior and the Environmental Protection Agency, appears contemporaneously

with Mutter et al. Management of federally owned public lands or waters are also subject to devolved federal government roles (Nie 2004b). Others note that natural resource activities most often devolved are licensing, fee collection, planning of land and water use, and environmental standard compliance (Bartley et al. 2008). Looking at devolution form another perspective, natural resource literature devotes significant attention to the use of partnerships, collaboration, co-management or co-operative environmental management as tools to achieve policy goals (Plummer and FitzGibbon 2004). The collaborative management approaches identified in this literature depends on some degree of decentralization/devolution of authority and resources for success (Arnstein 1969, Sullivan and Skelcher 2002, Burns and Cheng 2005, Fung 2006).

Contracting as policy.– Government purchases can be thought of as a binary classification of simple, commodity type purchases or complex products and services (DeHoog and Salamon 2002, Curry 2009, Kettl 2009, Brown et al. 2010). Brown et al. (2010) defines simple products as market-based exchanges involving easily defined products with verifiable cost and quality which are found in markets which have large numbers of buyers and sellers and the quantity supplied are known. Commodity purchase contracts are relatively complete specifications of buyer and seller roles in which competitors exist as backup (Brown et al. 2010). Complex products on the other hand are not so easily defined making the cost, quality and quantity difficult to develop and are in markets where suppliers are limited (Van Slyke 2003, Van Slyke 2007, Kettl 2009, Brown et al. 2010).

Government uses contracts as the vehicles to execute collaborative management approaches such as grants, incentives, and waivers in exchange for desired behaviors or outcomes (Kettl 2002a). Collaborative management necessarily invokes elements used to describe complex products. Salamon (2002a) points out that meeting efficiency demands places

emphasis on use of indirect collaborative approaches which are managed and settled through contracts. These authors suggest the desired location of the skills needed to manage the collaborative tools, providers, contract content and reporting is within the agencies procurement staff and processes rather than within program staff (Kettl 2002a; b, Salamon 2002a).

Contracting capacity.– Gargan (1981) noted that governmental capacity is simply the ability to "do what it wants". Gargan elaborates that agreed-to definitions of capacity, its sources or its measurement do not exist, but local governments do differ in their ability to get things done. Gargan (1981) argues that capacity is a rhetorical device rather than a measurable term. Argranoff and McGuire (1998) support this view by invoking the "mysterious" nature of capacity and capacity building in public administration literature. Others posit that capacities and skills differing from those in traditional hierarchical government are required to use contracts, incentives, and grants (Kettl 2002a, Salamon 2002b, Brown and Potoski 2003a, Fernandez et al. 2008). Both Kettl (2002a) and Gargan (1981) equate government performance to management of governance tools and accountability.

The complexity of collaborative management tools, how they link to policy objectives and the application environment frustrate the formulation of widely applicable capacity measures. Honadle (1981) opined that a "consensus definition of capacity" was unlikely and that definition of the concept relative to its application was more appropriate. Capacity has been equated with inputs such as staffing or spending (Bowman and Kearney 1988), rules to control behaviors of political and administrative actors (Hou et al. 2003), information about management support (O'Neil 2007), political and administrative cultures (Mead 2002), personnel management (Donahue et al. 2000) or some 11 different descriptors of administrative capacities (Farazmand 2009). Authors writing from a collaborative management view define capacity as the

characteristics needed to build, support or sustain collaborative process (Fleeger and Becker 2008, Garcia-Ramirez et al. 2009), the age of the collaborative effort and extent of activities (Gazley 2010), the capacity to make "things work" while fostering changes in underlying assumptions and beliefs (Nowell 2009), or the ability to sustain both institutional goal commitment and social capital needed to support the partnership (Weber et al. 2007).

Hale and Slaton (2008) present a framework that organizes capacity characteristics on a timeline starting with early concepts of governmental capacity base on public organizations and the local environment (as in Gargan 1981, and Honadle 1981) to more recent concepts of public entities in networked environments as described by Agranoff (2007), Weber et al. (2007) and Provan and Milward (2001). The framework supports the position that capacity is not a static set of parameters but is related to the specific environment, objectives, collaborative management approach and parties involved. Still the characteristics of indirect government tools suggest "programmatic" and "operational" management skills are important. Programmatic skills as characterized by Salamon (2002b) are activation, orchestration and modulation while operational skills are specific to the capacity for goal setting, negotiation, implementation, financial management, evaluation capability, communications and bridging abilities (Kettl 2002a, Brown and Potoski 2003a). Indirect government action is not considered self-executing and requires active management to mesh policy goals, tools used (regulations, contracts, grants, incentives etc.) and the application environment to efficiently manage the indirect actions.

Boundaries.– A consequence of contracts and the other indirect government tools is the development of networks focused on the specific policy issues and made up of the government agencies and individuals or organizations involved in the program (Kettl 2002a, Salamon 2002b, Cohen and Eimicke 2008, Johnston and Romzek 2008, Koliba et al. 2011). Not surprisingly, the

description of programmatic level capacities needed to support management of indirect government programs described by Salamon (2002b) are similar to the skills or capacities suggested for engaging in policy networks (Peters and Pierre 1998, Milward and Provan 2000, Kettl 2002b, Cooper 2003, Agranoff 2007, Koliba et al. 2011). Further, networks composed of government officials and contractors present added challenges in complex projects where interdependency of the parties raise questions about the boundaries between public and private actions (Frederickson and Smith 2003, Kettl 2006, Agranoff 2007, Brown et al. 2010). Use of third party contracting for complex products requires boundary management capabilities unlike those routinely found in procurement contract use (Kettl 2006).

Organizational boundaries can be roughly equated to where or how lines between the organization and its environment are drawn and recognized, i.e. what is "of the agency" and what is not (Hernes and Paulsen 2003). Hernes and Paulsen (2003), taking a research perspective, warn that locating organization boundaries creates dilemmas as they have the potential to exist as both inner mental structures of the observer or as an external structures of an organization. Kettl (2006) takes a realist view in positing five boundaries in governmental agencies which he described as mission, resources, capacity, responsibility and accountability. All are challenged by use of indirect service provision and the associated networks (Kettl 2000b, Kettl 2002a, Sullivan and Skelcher 2002, Kettl 2006). Inclusion of non-governmental parties in government agency service provision also introduces new dynamics into boundary interpretation and shifts from the interaction of internal and external stakeholders (Rafaeli and Vilnai-Yavetz 2003). Buck's (2009) analysis of wildlife management agencies capacity and boundary challenges largely follows Kettl's general outline of boundaries in the review.

Methods

Interviews and contract use data were used to develop a case study of the Colorado Division of Wildlife (CDOW) use of collaborative management contracts. An additional set of interviews with Wyoming Game and Fish Department (WGFD) staff were conducted to create a small comparison case. Transcripts from interviews conducted with the CDOW staff, Colorado state procurement staff, CDOW vendors and the WGFD staff were analyzed using an approach based on grounded theory methods. All interviews were conducted under the Colorado State University's Institutional Review Board approved protocol #09-1432H which included both written informed consent and anonymity provisions.

Case study development.– The case study design is characterized as a an exploratory, single case design (Yin 2003; 2009) compatible with hypothesis generation (Levy 2008, Seawright and Gerring 2008). The Colorado interviews comprise the main case. A second smaller case consisting of interviews of WGFD employees was created and used for comparison and contrast purposes. The design concept is similar to a multi-case design (Yin 2009) but the limited number of interviews in the WGFD case renders its use to triangulation and insight into the representativeness of the CDOW case (Yin 1998, Decrop 1999).

Interview procedures.– The interview process was similar in both the WGFD and CDOW. Contact, interview arrangements and informed consent were completed per the Research Protocol #09-1432H. The interview format was semi-structured and conversational (Patton 2002b, Glesne 2006). Interviews were recorded and transcribed. Codes were used to identify transcripts and references to individuals. The transcripts were provided to receptive informants for member checking (Yin 1994, Creswell 2009). Five general questions structured the initial interviews and the subsequent interviews explored the themes and elements from the

initial interviews. The initial interview inquiries were directed toward: how extensively were contracts used to accomplish wildlife management objectives; why were contracts used in those cases; descriptions of the relationships with contractors; did capacity or boundary type issues arise from these contract efforts; and how were capacity, implementation or boundary management needs addressed?

Interview analysis.– Interview transcript management and analysis followed an approach based on grounded theory methods as described in several different research traditions (Strauss and Corbin 1990, Charmaz 2005, Fendt and Sachs 2008). Interviews were transcribed and returned for member checking as appropriate. The transcripts were imported into QSR International's NVivo 9 software for review, coding and analysis. Grounded theory coding approaches were used in coding of all transcripts (Charmaz 2005, Fendt and Sachs 2008). Coding of the initial transcripts was not structured. Coding concepts developed directly from the content. Over-coding techniques were use to identify organizations and roles to assist in the analysis (Bazeley 2007). The analytic framework applied to the coded materials was an inductive thematic approach based on transcript content (Decrop 1999, Patton 2002c, Charmaz 2005, Braun and Clark 2006). Multiple coding (over-coding) (Bazeley 2007), was used to facilitate exploration of the interview content through the internal query and analysis tools in NVivo 9. A list of the open codes, free nodes in the NVivo parlance, along with brief descriptions is included as Appendix 7.1.

Results

Transcripts were compared for coding similarity using the internal analysis tools in NVivo 9. The similarity of coding of each transcript is presented as a way to visualize not only the degree of coding similarity but as a way to group informant content based on coding. NVivo

calculates a Jaccard's coefficient (Naumann and Herschel 2010) based on code use within each transcript which is a measure of the similarity of coding applied to the documents. In Figure 7.1, grouping was constrained to five groups and transcript similarity is indicated by like colored fonts. Individual transcript similarities are also depicted with brackets. The majority of the CDOW's biological and field staff is included in a single group (dark blue). Informants from the Colorado contract administration and procurement staff are in a separate group (light blue)

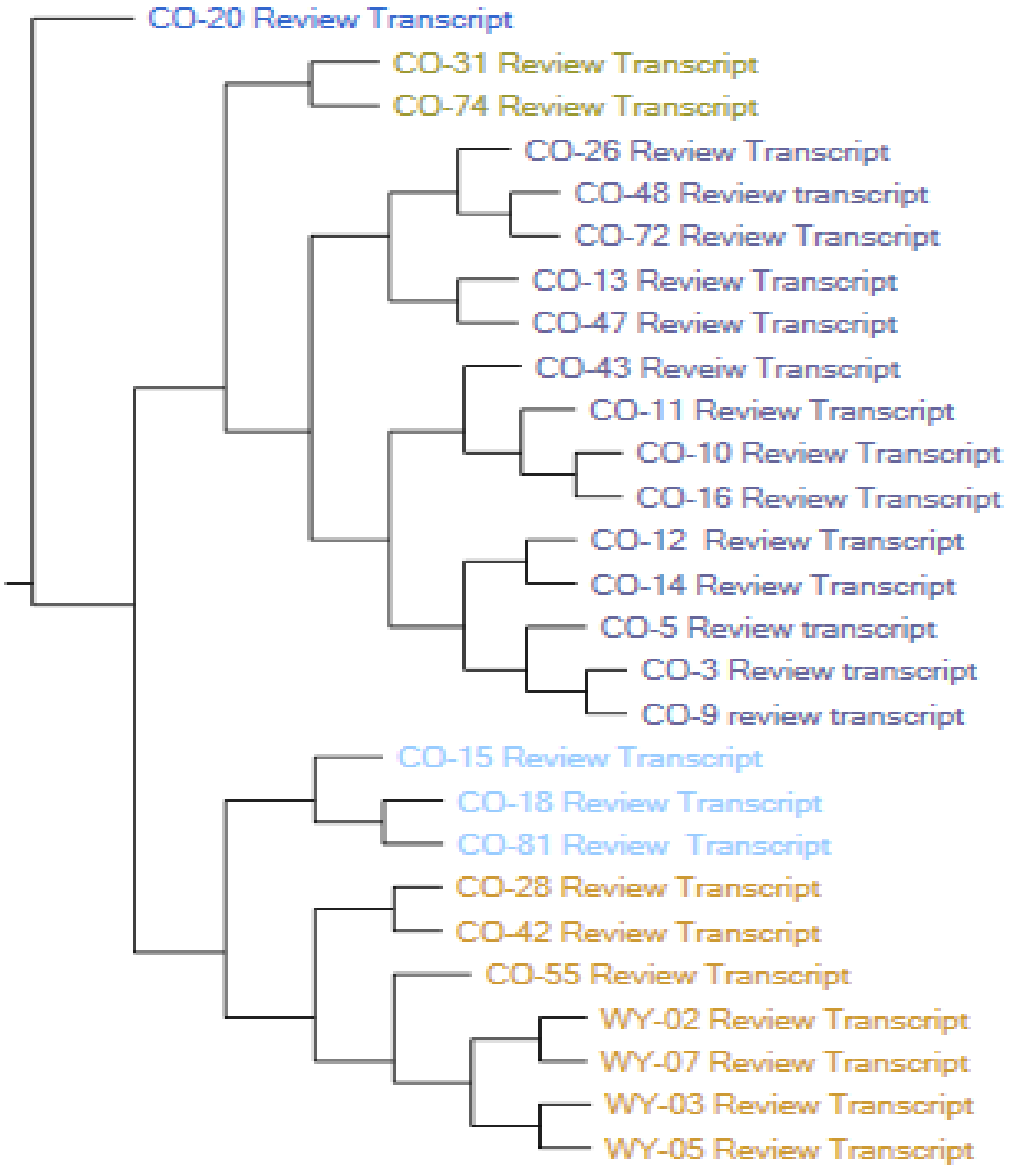


Figure 7. 1 Coding similarity grouping using a Jaccard's coefficient to create five groups.

while a group composed of contractors and the WGFD staff are identified in another (brown). The code grouping shows procurement/contract administrators, the WGFD and contractors group were more similarly coded than the CDOW staff group. Three of the 27 total transcripts comprise the remaining groups. The groupings help visualize the similar of the transcripts based on occurrence of code topics. However, the groupings do not infer the content of the coded sections are equivalent.

Decision to contract.– The informant's explanations of why collaborative management contracts were used were similar regardless of the wildlife agency. Like other government agencies reported in the literature, their preferred option was to use employees rather than contractors. This preference was widely shared and several Colorado informants advised that the agency director preferred the use of employees over contracting effectively creating an informal agency policy. Other CDOW informants also referenced agreements among some managers and staff to minimize contract use. As two informants related:

> "I've faced this before. Because in the past, when we mostly dealt with game fish, we as an agency, especially the fisheries managers, decided: 'no we need to be the source of information for native fish and their conservation'. And so we went that direction. We did it within ourselves. We didn't contract out. We did it ourselves." C0-11[4]

> "But, you know, in general work that's done by contractors is looked down on, particularly biological work, by a large portion of the agency. And so I think if we had the staff to do the work internally we'd do all work internally. There is pressure from you know, the Director's staff down to do as much work as we can internally without contracts." CO-72

The rationale behind the desire to limit use of contracts for wildlife management purposes was attributed largely in erosion of agency authority. As explained by CO-11:

[4] All informant quotes have been edited to delete repeated words, duplicate phrases and pauses. Punctuation has been added for readability. [ ] identify content not contained in the transcript but added for readability.

> "But that is always a point of concern for us. [It] is that our expertise will become obsolete or we won't even have it. Other conservation organizations like The Nature Conservancy or Defenders, or Wildlife Federation or any other number of consultant groups that have developed expertise relating to wildlife and something, whether its energy or something like that, could become the go-to person because other agencies are used to working with them." CO-11

CDOW's collaborative management contracting use rate gauged by dollar value contracted varied year to year around a 12 fiscal year average of $20.1 million. The yearly expenditures are depicted in Figure 7.2. As a reference, commodity expenditures increased while capital property purchases varied widely over the same period. The Wyoming Game and Fish Department (WGFD) informants also confirm agency staff shortages and preference to use staff over contracts. The WGFD also describe the use of "at will" employees as their preferred method addressing skills or staff shortages.

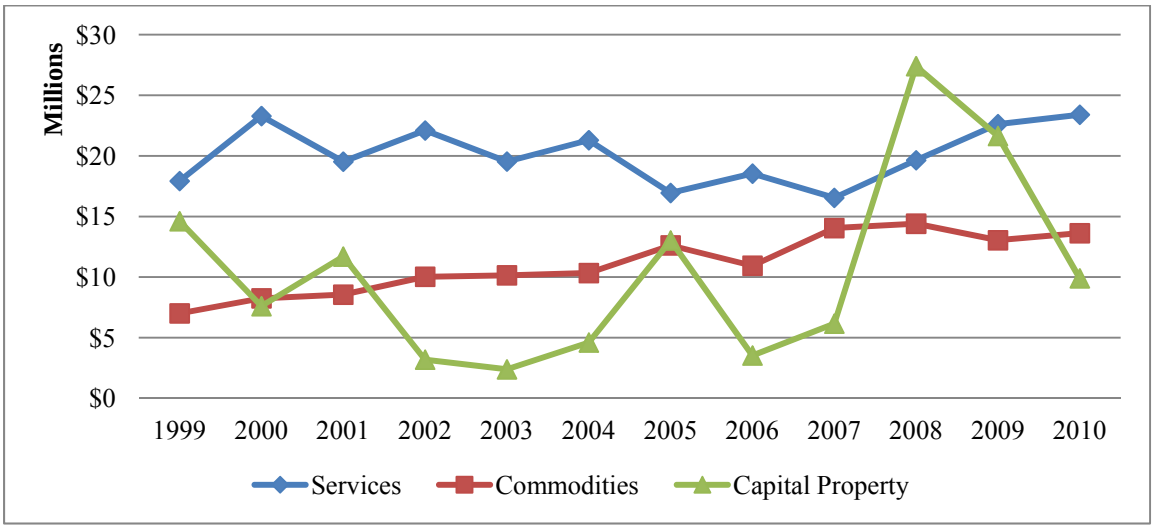


Figure 7. 2 Total contract values in three categories by fiscal year.

In both the CDOW and WGFD, the main reason cited in use of contracts was insufficient staff capacity to accomplish objectives. The lack of capacity was attributed to inadequate staffing levels for the assigned tasks, staff lacking the required skills and abilities or some combination of both. Whether created by legislative restrictions, state administrative controls or internal agency

priorities or policies, inadequate staffing was consistently reported as the primary trigger to considering service contracting. Internal agency policies affecting employee distribution within programs was identified as causing higher contract use rates in non-game/species conservation programs.

Decisions on make or buy were also subject to individual manager's criteria or considerations. Some reported volume and cost-benefit considerations:

> "We don't have appraisers on staff to actually go out and be able evaluate what the value of a particular parcel of land might be. So we contract for that service. Probably as a primary reason; it's not cost effective for us to have appraisers actually on staff." CO-09

Others include the characteristics of the work and its appeal to wildlife managers, relationship to game species management, or the potential to develop and recruit future employees. Exemplifying these considerations are:

> "I like to fund graduate students. I think it's - you get a really good bang for your buck. The Division of Wildlife paid for my master's degree and I guess I kind of feel like I'm paying it forward. If you look through the ranks of our biologists, most of them have master's degrees. Most of them, the Division of Wildlife funded their graduate work. So my belief is that by funding, we're training future biologists and researchers." CO-47

> "And so you know, actually [the] number[s] of animals are a lot more important to the agency and agency culture than planning documents. So it would be a lot more acceptable to have a contract for a planning document rather than actual on- the-ground inventory things. Actually, there is a distinction between species too. It comes down to what's fun and what's not. What species are fun and which ones aren't." CO-72

The WGFD informants report similar considerations in decisions on use of contracts and contractors.

Contract management capacity figures directly into contracting decisions by managers and staff of the CDOW. CDOW informants focused on the demands placed on them or their staff in contract development and administration. Many suggest that the state's contracting

requirements have imposed increasing and unreasonable burdens on those involved with contracts. The contract implementation requirements are identified as limiting factors on contract use and initiation of projects. As some examples show:

> "So there is a huge administrative overhead. If we were asked to double the number of contracts that we did, basically we would have to clone me and my program assistant because we could not handle the administrative overhead. It's just too time consuming to deal with the paper work." CO-47

> "But then you go through our contracting process and it's so difficult and so time consuming you just go, 'is this worth it'? Is the end product worth what I am doing? Do I have enough time, effort and brain power to do it?" CO-16

> "And it's difficult because you just --the rules and the red tape are so hard to overcome that [at] the field level people don't do things because it's going to involve contracting." CO-12

WGFD personnel also observe that contract requirements have increased which has increased the work required to implement a contract. WGFD field staff also report the workload related to contracts is managed by limiting the number of contract based projects they develop or manage. As one informant noted:

> "So any one person can really only effectively handle implementing one or two projects a year because they're assessing stuff. They're monitoring stuff. They're commenting on projects plus they're working with kids at the school and all that stuff." WY-03

The WGFD possess the authority for "at-will" contract employees which have no direct counterpart in the CDOW. The WGFD process to hire at-will employees is described as uncomplicated and direct. While the individual "hired' is a contract employee, bidding is not required and the contract terms are negotiable. The employment process is reportedly initiated using a simple and standardized form contract containing the agreed compensation and reporting terms. These contract employees operate similar to full time WGFD employees and are described as generally indistinguishable to the public, but they are technically contractors, not "employees" of the WGFD or the State of Wyoming. The number of active contract employees available to

the WGFD at any given time period is subject to state legislature allocations. The WGFD manages the number on contract to completely use the allocations according to the informants. Effectively the WGFD may employ more individual at will employees during the year by adjusting the terms of employment to maintain the count below the allocated number for any given time period. Descriptions of tasks assigned to the contract employees range from general labor to tasks requiring specialized wildlife, survey or public administration skills. An "at will" contract employee may work for consecutive years. WGFD employees note that the at will employees are widely used in the agency and provide ways to access to skills that would otherwise require using contracts.

Available expertise is a consideration in the decision on use of contracts. Knowing the specific provider of needed expertise or skills is not characterized as an absolute need; rather the decision element is described as knowing the desired expertise or skill is available from acceptable sources or is anticipated to be available from those sources. The acceptable source is characterized as one where there are positive past experiences with the provider; or lacking past experience, the potential providers are anticipated to share similar professional and institutional viewpoints, don't have undesirable agendas or organizational biases and are not overtly politically active. Using the informant supplied decision elements a simplified schematic of the contract decision path is presented as Figure 7.3. The decision model provides multiple decision nodes where rejecting contract use can occur. Relatively few paths lead to a positive contracting decision which is consistent with the CDOW informants' description of the hesitancy to employ contracts.

Systemic influences.– CDOW staff report that contracting for service and grants has progressively become more difficult to accomplish. The opportunities for use are not reported as

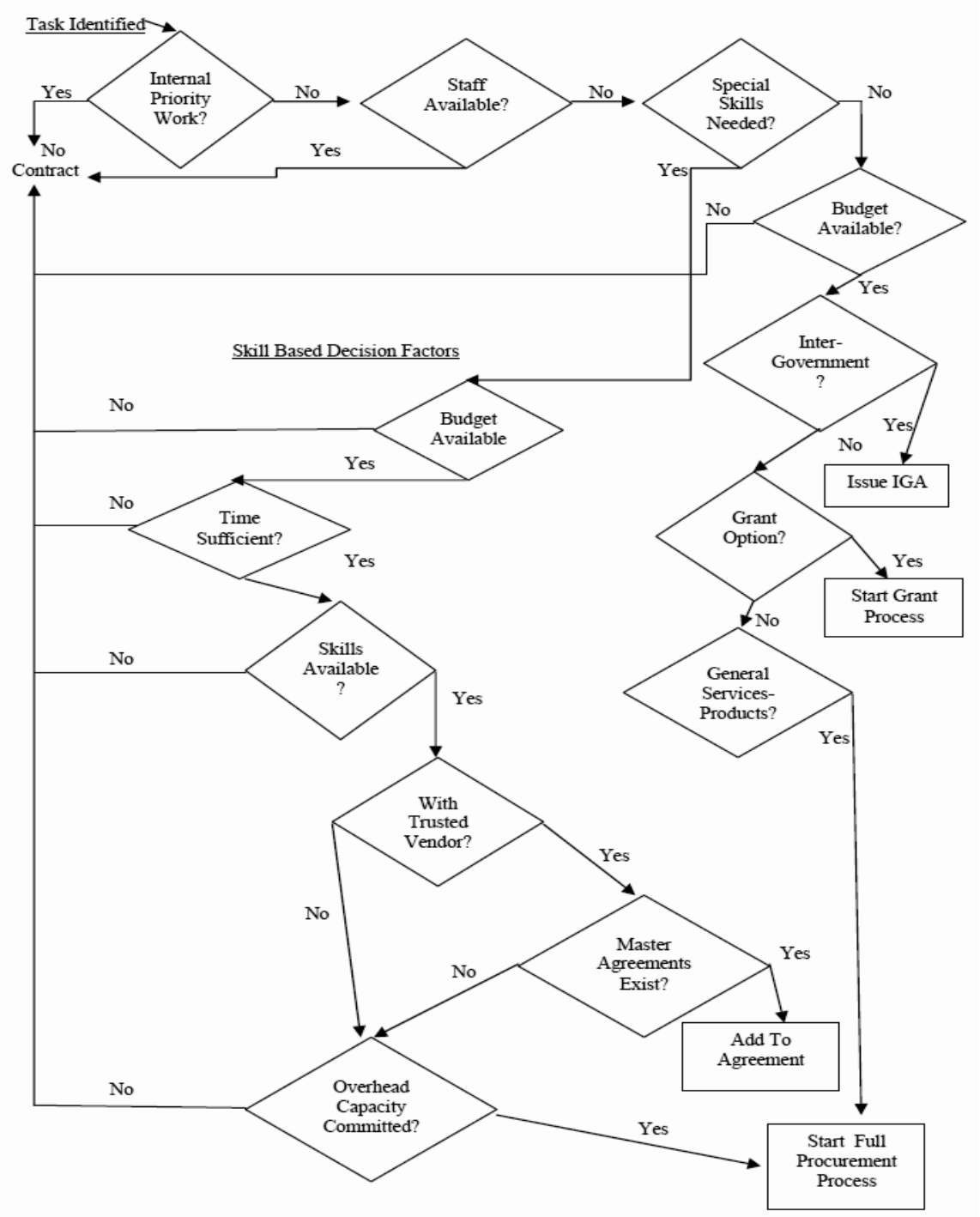


Figure 7. 3 Contract decision pathway based on CDOW interviews.

limited, rather it is the difficulties in applying the tools. Informants point to elements such as limited numbers of acceptable contractors and negative impacts of state contracting rules and process.

The system limitations identified are collected under a theme of systemic complexity. Figure 7.4 portrays the components of the systemic complexity theme and provides examples from informants. The organizing principle of this theme are the elements in CDOW's contracting environment that are not directly under the agencies control which negatively impact decisions to use contracts. The complexity and timeframe of the CDOW's planning and budgeting process creates uncertainty around project approvals and money availability which is further amplified by the varying requirements of funding sources which are often blended in program budgets. Fund sources such as federal assistance, grants from various entities, or combinations of grants, federal and state funds create a complex and dynamic approval and reporting process with differing timeframes on the ability to spend the money. As one informant closed the explanation of the complexity of matching needs and budgets:

> "It's not nearly as straight forward as I am making [it] sound here. One of the big problems we have is our recognition of need for certain activities rarely match up with our budget planning cycle." CO-11

The timing mismatch between need and budgets directly impacts contract initiation. The procurement process requires the agency budget and funding approvals be noted and that the available unencumbered funds in the state's budget and accounting system are at least equal to the anticipated cost prior to initiating procurement actions. Delays in internal agency budget decisions or outside fund approvals cascade into the timeframe available for procurement processes and subtract from the time available to the contractors to complete the work. Informants noted the reduced time for field work has led to more frequent use of more complex

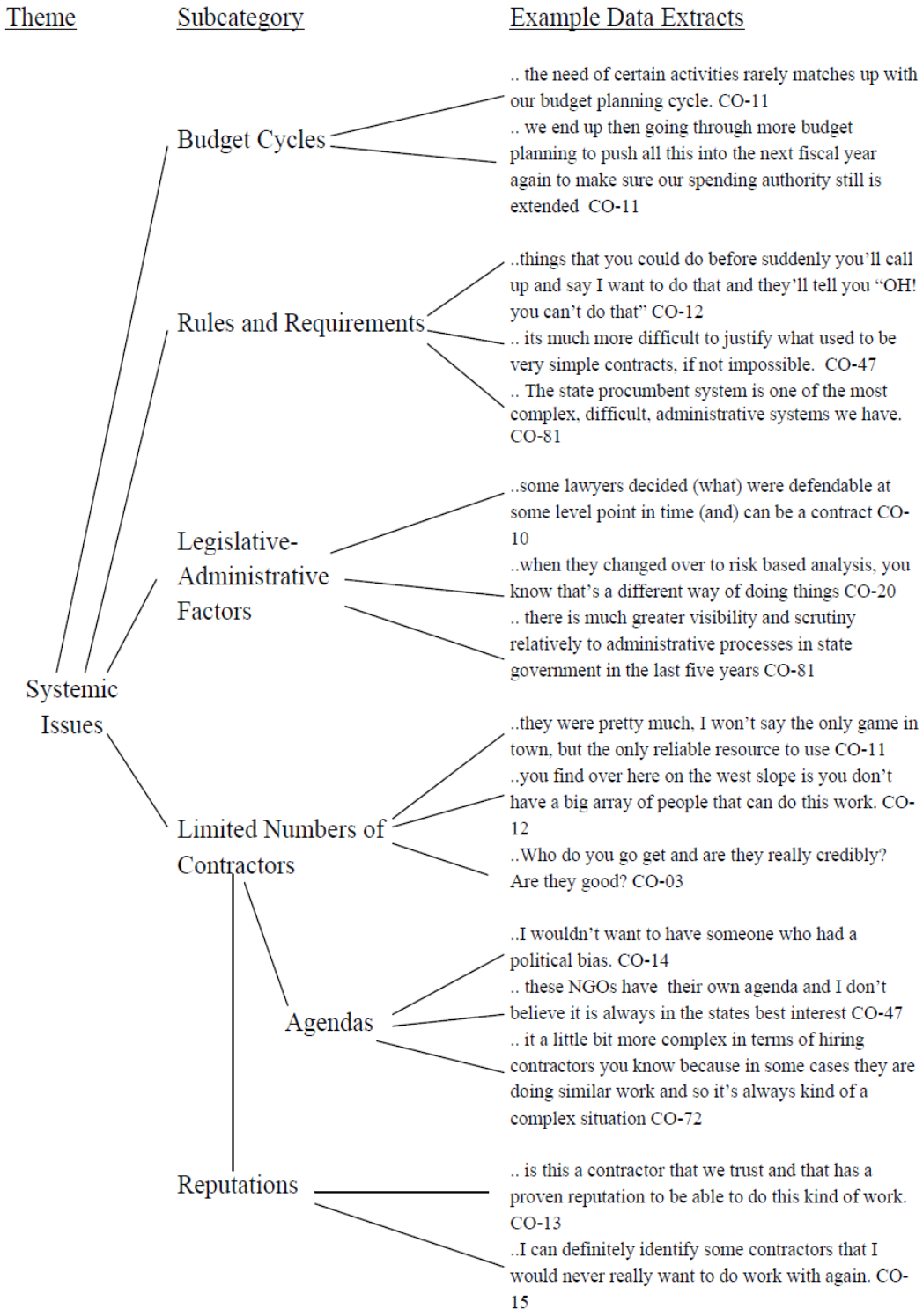


Figure 7. 4 Systemic complexity illustrated by interview extracts

multiyear contracts in order to match the increased contracting timelines to the timeframe needed to complete biological field tasks. The budget decision timelines and use of multiple fund sources predictably increases the difficulty of demonstrating funding for multiple years and contract management needs when multiple year agreements are used. The effects are noted in both the CDOW and with contractors as one informant noted:

> "It's very difficult to secure the money over a time period to enter into a third party contract. It becomes sort of a disincentive for contractors to even get into this." CO-11

Complexity in contracting rules and documentation requirements are noted by CDOW staff as discouraging use of contracts. The disincentives are characterized as either the length of time required to obtain a fully approved contract and the difficulty of matching complex wildlife management tasks to a procurement system based on a commodity purchase metaphor of product, price, and delivery date. An example of the latter is the comment on product descriptions related to contracts to experimentally grow native seeds not commercially available:

> "Purchasing odd, you know, purchasing [a] growers half acre and his time and attention to detail to go out there and plant something that's never been planted before? I mean how do you? There's no product there? I guess I am buying his time, but really what I am trying to buy is seed." CO-12

Others point out that the time required to deploy a contract often do not match those that the contracted service was to address:

> "So what that also does is some of these problems are time sensitive. You need the answer. You need the work done in a pretty rapid time. The contracting process is pretty cumbersome at best and there are times we have to factor [that] in. Can we afford to wait for the contracts to go through, the money to be encumbered and everything; all the approvals? We have had situations in the past when that has been drawn out and took such a long time that the answer wasn't really germane. The decision point within the agency already passed by the time we got the information." CO-03

The complexity of the contract procurement process is negatively perceived and feeds the desire to avoid contracting. The complexity and employee attitudes about contract use are linked as many noted:

> "The state procurement system is, as I mentioned before, is one of the most complex, difficult administrative systems we have. I'm a project manager. I've got a complex problem to solve. I've got a system that makes it hard for me to do that." CO-81

> "I understand why people think that contracting is probably one of the worst punishments ever, you know? Like you just got put in charge of the contract? Like hmmmmm, I will take the death penalty." CO-15

The contract procurement system is also subject to changes in statutes, purchasing rules, judicial review or administrative requirements which have immediate and significant impacts. Informants pointed to different examples of changes to statues, fiscal rules, "authoritative interpretations" or implementation procedures. The topics mentioned included risk-based contract assessment procedures, independent contractor requirements, contractor registration, insurance requirements and administrative decisions to reassign long-used contract types into administrative classification that require more documentation, approvals and processing time. An example noted by CDOW informants pertained to changes in the approved uses and qualification requirements for temporary professional service contracts. As one informant stated:

> "I mean for example we used to contract, because of the 6 month limit on state employees. So we used to contract. Well now they're limiting that. I mean they just keep on putting the screws to us." CO-16

The change in requirements or procedures which reduced or limited the use of temporary contracting was noted by several participants. Since this reference is to a specific type of contract, it allows comparison of the CDOW provided accounting data for the period. Figure 7.5 shows the total contract amounts for all professional services contract categories reported for a 12 fiscal year period. The dramatic change in the dollar value of the two professional service

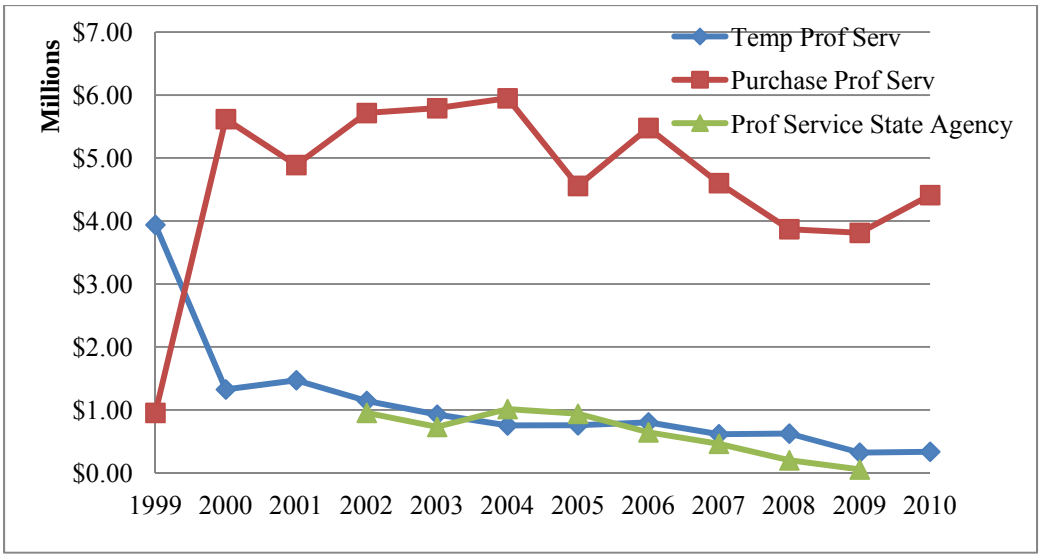


Figure 7. 5 Fiscal year changes in professional service contract expenditures.

categories between fiscal year 1999 and 2000 supports the informant's claims of use restrictions on the temporary professional service contracts. The decline in all service contract expenditures over the 12 year period buttresses informants' reported reduced use of some contract types in favor of other types and the early dramatic shift from temporary to purchase of professional services depicts a response to changed procurement policies.

Informants identified overhead cost and increased capacity needs when contracts were used. The overhead cost concerns largely focus on documentary requirements and the administrative time demand to manage and coordinate the contracting process. Colorado's shift to a risk reduction-risk avoidance procurement strategy was cited as causing increased documentation demands, process changes, restrictions or elimination of some contract types and added reporting requirements. Informants mention a range of causal factors for the changes including: changes in procurement personnel, statute changes, new Attorney General interpretations, departmental policy, delegation of approval authority to lower organizational levels, federal requirements, and court actions.

CDOW and WGFD informants both report limited numbers of suitable wildlife management contractors are available for contracted projects. The limited number of capable contractors is identified as a significant limiting factor on use of collaborative wildlife management contracts. Exploring the limited contractor theme reveals it is based on both an actual number component and a preference component. Physical availability described by the informants is a situation where contractor workloads, interest in working for a state agency or few or no contractors with the needed qualifications/skills lead to poor or no responses to contract solicitations. From an informant's perspective:

> "In my experience across the state there's a much smaller pool of third party contractors of any stripe that are able to deliver wildlife conservation services." CO-11

Limited contractor pools often result from the required skills not being available from instate vendors or when there are very few skilled providers nationwide. An example of this limitation was described as a circumstance where the only known individuals skilled in a certain species inventory were located in the eastern U.S. and the individuals were not interested in work outside of their state of residence. The informant stated the inventory was placed on hold in hopes of finding another skilled provider. In the case of preference driven limits, informants describe two preference types, one that operates at the level of make or buy and the other at the contractor selection level. The make or buy preference is an internal agency selection of tasks suited to contracts while preferentially retaining task such as game species inventories or other game species work as employee task.

Contractor selection preferences informs the limited number of contractors viewpoint based on informant objectives to avoid contractors that were described as agenda driven, have poor reputations, or were considered un-trust worthy. Further description of these limitations include references agendas that are incompatible with the agency's or would create doubts about

the product or the agency's credibility, have been politically active or are considered a direct competitor in some program. Past poor performance or difficult relationships were widely acknowledged as reasons to avoid using a specific contractor. Several informants noted that previous poor performance by a contractor had been used a reason to reject potential contractors in the procurement process with varying success. The following comments, combined with those cited in Figure 7.5, further illustrate the limited vendor component of the system limits theme:

> "The thing is we have a pretty limited range of people that we contract with. I mean, it's primarily universities and a handful of NGOs that can do the work." CO-72

> "There's a limited number of people out there you can contract with. Typically they're university people, researchers, who're doing different projects [with] and have an interest in a specific species. Or they're groups like Colorado Natural Heritage Program or Rocky Mountain Bird Observatory. So there's a fairly limited group of people who really do it and do it well. Although you may get some independent contractor who may be a retired biologist who might have some interest in it. I think we've found over the years working with these more established groups works better." CO-48

An example confirming the limitation narrative in the WGFD is:

> "The other thing is there's only so many. The state of Wyoming is kind of a smaller state, and so there's also a limited number of the people that do any one certain type of work in the wildlife arena." WY-07

Exploring the concept of limited numbers of contractors using the CDOW contract accounting data provides an examination of the distribution of contracts across vendors over a 12 year fiscal year period. The results are summarized in Table 7.1 and represent all contracts types (commodity, service and grants) based on individually named contractors in the data set. Contractors are grouped by into ranges based on the total number of contracts held in fiscal years 1999-2010. Eighty-four percent of all contractors during the period held five or fewer contracts or 38% of the total contracts. One vendor, Colorado State University had 4% of all contracts during the period. A total of seven contractors (0.21% of the contractors) held 12% of all

Table 7. 1 Distribution of contracts by number of contractors who held similar numbers for fiscal years 1999-2010.

Contract Number Range	Number of Contracts	Total Contractors Included[1]	% of Contracts	% of Contractors
493	493	1	4%	0.03%
101-300	1055	6	8%	0.18%
51-100	792	12	6%	0.36%
21- 50	1546	50	12%	1.50%
16-20	781	44	6%	1.32%
11-15	1406	111	10%	3.33%
6-10	2250	296	17%	8.89%
2-5	3493	1235	26%	37.09%
1	1575	1575	12%	47.30%
Total	13391	3330	100%	100.00%

[1] Contract counts may be subject to potential discrepancies in contractor names such as spelling differences, use of abbreviations or name use.

contracts issued. This group was made up of Colorado State University as previously mentioned, Colorado state government via interagency agreements, Rangen Inc. a fish food provider, the U. S. Department of Agriculture (as a department and as the U.S. Forest Service), the Colorado Board of Land Commissioners and Pheasants Forever Inc., a non-profit entity. The next group below these two groups adds computer equipment providers, various commodity suppliers, the Department of Interior, a helicopter service, the Rocky Mountain Bird Observatory (a non-profit) and Ducks Unlimited (a non-profit). The high rate of contracting with Colorado State University matches the expressed preference for this contract partner by CDOW informants. The listing of several NGOs in upper ranks of frequent contractors identifies other long-term contracting relationships noted by some informants. The federal governmental agencies listed in the top groupings are not unexpected in a state with a large federal landownership and a state wildlife agency involved in public accesses and habitat management programs. The commodities and flight services are procured through bids.

Institutional features.– Institutions have characteristics described as regulative elements (i.e. formal rules or laws), normative elements (i.e. values and norms) and cultural cognitive elements (i.e. the "what" people know and their socially constructed reality) (DiMaggio and Powell 1991, Scott 1995, Lawrence and Suddaby 2006). Interviews with CDOW and WGFD staff were not structured to specifically explore institutional factors. However, the interview content suggested a wildlife management paradigm as described by Gigilotti et al. (2009) was active in wildlife management contracting.

The regulatory aspects of the CDOW and WGFD and their associated wildlife commissions are not examined or reported here. For those interested, the formal statutory and regulatory authorities of both wildlife agencies are accessible online as are those related to the states purchasing functions. The existence of these regulatory elements and the police powers allocated to selected agents of the CDOW and WGFD are noted as regulative elements as well as the CDOW internal policies and directives addressing agency and employee behaviors and performance.

Figure 7.6 displays components used to describe an institution framework informing state wildlife agency use of wildlife management contracting. Institutional elements of cultural realities and norms are used to group interview themes and are illustrated by interview extracts. The institutional elements important to contract use in wildlife management projects are organized based on norms and internal understandings. Based on CDOW interviews, the agency culture reality is that wildlife biologists would prefer to work for a state wildlife agency. Understandings of "what is" wildlife management and "how" wildlife management is practiced are widely shared within the agency as elements of the wildlife profession. Wildlife management tasks are privileged over other tasks and requirements and agency employees enjoy a degree

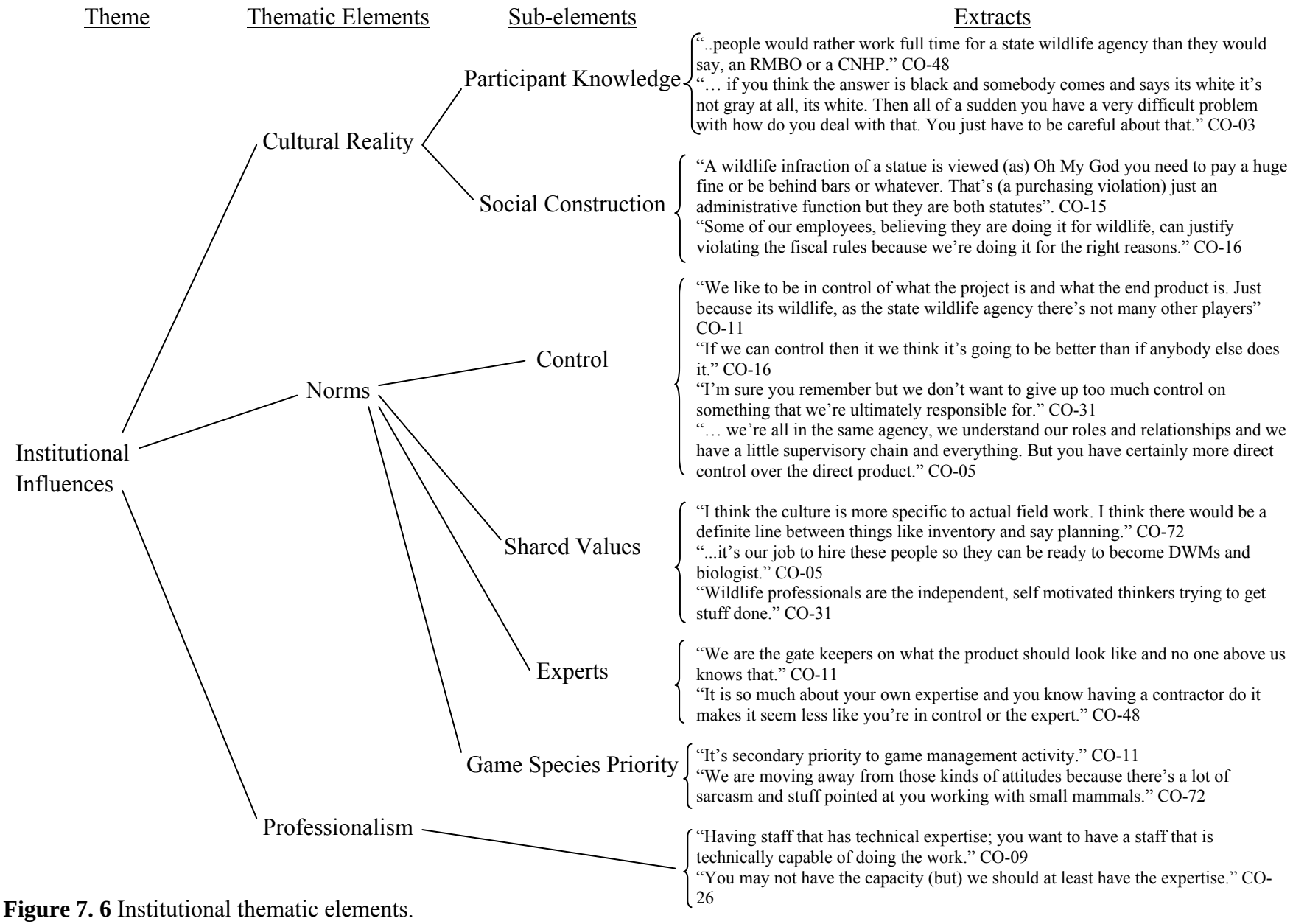


Figure 7. 6 Institutional thematic elements.

of discretion in action so long as their actions fall within the what and how of the wildlife management boundaries.

Norms consistently expressed in relation to contacts were: maintaining control; shared values about acceptable contract use; agency standing, expectations on maintenance of agency standing by employees; employee/agency standing as "the" state's wildlife experts; and the priority of game management. A professionalism element related to the standing and reputation element but associated with hiring and maintaining employee skills and abilities was also identified. The professionalism element is noted as potentially helping to foster similarity in state wildlife management agencies following the description and processes in the institutional literature (Meyer and Rowan 1977, DiMaggio and Powell 1983, Bartley et al. 2008). The professionalism sub-theme also reflects staff desires for skills and abilities at or above the levels required for contracted tasks. Expression of this desire links the professionalism elements to agency theory components.

The WGFD case maps to the institutional theme in Figure 7.6 but with fewer examples in the limited number of interviews. The preference for use of agency staff for wildlife management tasks is perhaps stronger in WGFD as "at will" employees are widely used and were identified as an approach that limited the need to use of third party providers in agency programs other than the agency's grant programs. The WGFD preference for staff was voiced by a third party service provider who noted that the WGFD was more protective of its staff and privileged staff's recommendations more strongly than in the contractor's experience with the CDOW. WGFD informants noted regular use of third parties for license surveys, engineering design, and water rights analysis. Grant contracts for habitat improvement were identified as the major collaborative wildlife management contracting activity. Grant contracts were described as most

often between the WGFD and either a non-profit organization or a private landowner. Project details were cited as the factors influencing the contractor identification. The linkage of habitat improvement projects to specific entities using physical location information and the interest of the grant partners was noted as factors used by WGFD in selecting grant recipients.

Institutional influences are seen in agency contractor preferences. In both the CDOW and WGFD cases, staff expressed a preference for universities for collaborative projects such as inventories, species research, management protocol development and similar projects. A stronger preference for universities with wildlife and natural resource programs over those without was identified. As previously noted the CDOW accounting data identifies Colorado State University (CSU) as CDOW's most frequent contract partner. WGFD informants noted ongoing contracts for wildlife research and inventory with the University of Wyoming. Both wildlife agency staffs expressed an ongoing desire to work with these universities and also noted the benefit and importance of the university programs for review and develop potential employees:

> "If you look through the ranks of our biologists, most of them have master's degrees and most of them, the Division of Wildlife funded their graduate work. So my belief is that by funding, we're training future biologists and researchers." CO-47

> "It's our job to hire these people so they can be ready to become DWMs and biologists." CO-05

> "We get a chance to look at those folks and they get a chance, through the university setting, which is a bit different than the Department setting, but they get a chance to interact with somebody, maybe multiple people, from the agency. We get to try each other on basically." WY-05

The university-wildlife agency relationship provides training and enculturation experiences through the university while also providing the wildlife agency simplified contracting processes, access to knowledge and skills sets, provides opportunities to evaluate potential employees and provides access to professional development opportunities for agency staff.

The interviews highlight elements of the wildlife management institutional paradigms that underlie decisions on use of contracts for wildlife purposes. The decision elements emerging from the paradigm in the CDOW interviews are summarized in no order as:

1. Wildlife management activities are privileged over other activities or requirements.
2. State wildlife managers and other recognized wildlife professionals are privileged over others.
3. Game species are privileged over non-game species which are in turn privileged over administrative task.
4. Universities with wildlife degree programs are privileged over other universities.
5. Select species specific or historically important non-profit organizations are privileged over other organized wildlife interest.
6. Skeptical of motives or capabilities of non-profit and for profit organizations which do have not a history with the agency.
7. Distrust politically active non-profit or for profit organizations.
8. Have a low tolerance for unexpected results or poor performance.
9. Are attentive to and guard against threats to the wildlife agency's authority, standing and control.

Contractor's perspective.– Colorado based contractors unanimously noted difficulties with Colorado's state procurement process. Identified concerns fall into two areas: process and behaviors. The concerns were characterized as: overly strict limits on communication and collaboration with the CDOW prior to bid submission regardless of the project complexity or collaboration needs; time delays in the procurement steps and/or contract approval; undisclosed

delays in contract processing which impact timelines and cost; money and time cost imposed by procedures unrelated to the purpose of the contract; purchasing agents inappropriately assuming biological or agency evaluation roles; and contract amendment limitations which compromise the ability to address changed circumstances outside of the control of the contractors or CDOW. Three of the contractors also performed contract work for the WGFD. All three related that contracting with WGFD seemed to be simpler and less burdensome from their experience. However all indicated the extent of their involvement with the WGFD was less in both total dollars and the number of contracts. The contractors suggested the smaller size of the contracts with WGFD could lead to less complex processes. One non-profit contractor noted that WGFD seemed less attentive to contractor communication which created delays and increasing administrative.

Three of the four contractors specifically located their concerns in the state's procurement and contract approval procedures rather than in the CDOW. These contractors generally characterized CDOW staff favorably and as performing adequately under a process over which they had little control or influence. One contractor suggested that given the strict limitations on communication between the CDOW and potential bidders during the procurement process, the CDOW staff needed to put more thought into developing detailed task, timelines and including the relevant baseline data in the scope of work as a ways to improve both the bids and the end results.

A fourth contractor described what was felt to be a change in circumstances which significantly and negatively impacted the projects the contractor would consider and had modified their interaction with the CDOW. The informant felt that other contractors experienced

the same impacts. This contractor specifically addressed the concerns toward the grants focused on habitat protection and enhancement. As related by this informant:

> "We have great relationships with every single one of our public agency partners except Division of Wildlife. We really struggle to meet the obligations that they put before us. I find that that a lot of what they try to do is really obstructional instead of being facilitators of great conservation work. It's all through the contracts. The contracts are really, really difficult to work with. Every time you think you've got a standard contract it's like, 'great we've got a template. We'll move on to this. The next contract should be just fine. We'll have a standard and everyone's going to be happy'. It changes every time! It's more and more and more due diligence for the most part. It's getting to the point where you actually can't take those funds. The cost of using those funds is just too high. You just can't meet their demands." CO-43

The informants' opinion of the source of the problems was further explained by comparing past experience with the CDOW with current experiences with another Colorado state agency. Contract experience with the Colorado Water Conservation Board was cited as both simpler and as evidence that more contractor-friendly contracts are possible. The difference in contracting experience formed the basis of this informant's opinion that CDOW was the source of the contract problems. Contract complaints were linked conversationally to the described loss of a favored relationship with the CDOW. The linkages suggested the contract requirements may be symptomatic of both changes in organizational relationships and procurement requirements. As the informant notes:

> "…he's got, I don't know how many contracts out there, but really he's trying to administer all these different pieces as if you are a contractor instead of a partner." CO-43

While acknowledging the legislative, fiscal and legal demands have impacted the contract process, the informant attributes responsibility for the decline in what was described as a historically close and cooperative relationship with CDOW.

The informant notes the organization is a national non-profit that has been active with the CDOW for many years. It was noted that as the CDOW began to use grants for habitat projects,

they had added staff to help implement the grant program. The past flexibility, tolerance for change and easy acceptance of substitutions in deliverables had now become focused on enforcing compliance with contract specifications. The flexibility lost was characterized as the ability to: make project substitutions; redesigns; alteration of schedules; changing completion dates; or, modify cost or cost share schedules all without necessitating a contract default or revision. Other informant disclosures suggest a more complex prior relationship existed and the current circumstance involves factors in addition to current contract concerns. As an example of the relationship complexity, the informant related an occasion where a direct intervention was made to the Colorado Wildlife Commission to override the CDOW staff's recommendations on a project in which the organization had an interest.

The informant expressed the view that the CDOW needed to restore the past working "partnership" relationship and to trust the organization to do good work without the current level of oversight. The expressed belief was this would allow a return to more liberal contracts and contract administration along with the favorable fiscal policies of previous years. The return to the partnership was also suggested as the way to restore favorable treatment of the organizations proposals for habitat grants.

Procurement/contract administrator's perspective.– Colorado contract administrators agree that the procurement process and documentation requirements have become more complex. It requires more detail and documentation from the requesting agencies and contractors. The administrators located the origins of the requirements in the legislative and administrative changes which they say are often precipitated by embarrassing contract outcomes. The independent contractor requirements were cited as a result of former service contractors claiming unemployment reimbursement from the state. The claims created secondary issues in

federal and state unemployment claims, tax and pension fund collections and other areas which led to political attention to state service contract procedures. The administrators noted that poorly performing state contracts often get reported in the state's news media resulting in reactionary additions or adjustments to the state's procurement requirements. Changes can also arise in any of the multiple agencies which administer different elements of the procurement and contract approval process. Informants noted that increases in mandatory procurement tasks seldom include added resources to implement them. An example provided was recent changes in Colorado's statutes which added new review and reporting systems but did not include implementation resources to the agencies. The administrators noted that the requirements ended up as add work for agency staffs, added to contract processing times and more frustration. As one administrator noted:

> "I think probably the biggest problem with purchasing and contracting in the eyes of employees is it is so complex. 'I just don't even want to learn it. Just walk me through it.' The frustrating thing from my end [is] I can't hand hold 600 employees. That's what they want, unfortunately." CO-15

Purchasing administrators concur that the CDOW has a significant volume of contracts with objectives which are both unique and often vary widely year to year. One administrator noted that few purchasing personnel get to deal with ordering specifically formulated fish food by the semi-truck load while working on a multi-party deer birth control trial contract. However the administrators did not consider contract complexity and the uncertainty related to unique projects or environmentally variable conditions as reasons to support a collaborative or interactive planning with potential contractors as suggested by staff and contractors to improve outcomes. Rather the contract administrators reacted negatively:

> "If you do a lot of research and start talking to a lot of people, you've done the selection. So you need to be able to do enough research to get enough information that you can put

> together a scope of work that will be useful in selecting a vendor. But you can't go far enough, so that you've made a selection." CO-18

Exploring contracts in collaborative efforts further, particularly use contracts to support collaborative formation, capacity building or providing funds to stimulate project completion in collaborative projects also receive a negative responses. Addressing contract support to collaborative efforts:

> "I'm on the end of the perspective that says; 'why the heck are they doing that'? I don't think the procurement rules are written to foster that sort of relationship." CO-18

> "The procurement code really expects you to be doing fair and open competition with every entity, whether they be nonprofit or for profit. So if you've got an idea; you need to put it out there instead of making deals. That's the way the procurement code works. So if some people think that it's problematic doing that, I'd probably agree with them. Maybe they need training." CO-18

The contract administrators characterize the CDOW's relationship with their contractors as being lax, suggesting familiarity or casual working relationships. This type of relationship was not noted as a significant concern to the administrators as one noted:

> "I would say that the Divisions attitudes towards its vendors are; I don't think it's problematic, sometimes I think it's almost too lax. CO-15

Contract administrators also commented on CDOW's increasing use of grants and how grants can provide an agency administered selection processes outside of the standard formal bidding used by procurement. Fewer requirements and more agency control of the selection process were implied as reasons for CDOW's increasing use of grant program approaches:

> "Wildlife, because we're wildlife I'm convinced, likes to create their own grant programs vetted or not." CO-15

The administrators did express concerns about the use of grants and the grantee selection:

> "I think the minute it starts looking like you have an old boy network or giving it to your friends or somebody you worked with a long time or your relatives or anything like that, I think that's trouble." CO-18

The concerns appeared to be directed at the repeated appearance of some grantees in the CDOW grant awards and at a selection process subject to influences outside what would apply in a formal bid process. One informant cited a case where administrative staff over-rode the selection process and selected other recipients as evidence of problems in the CDOW grant program administration.

The contract administrators believe the CDOW staff view them as "road blocks" as one put it. On the other hand, the administrators characterize CDOW staff as lacking interest in the procurement and contract processes and dismissing or reducing the importance of procurement. This theme is present even while the administrators acknowledge the complexity of the procurement process. Agency program staff are faulted for inadequately or inappropriately planning projects and failing to account for the time requirements of the procurement and contract development phases. Training was not considered beneficial in addressing these planning concerns, suggesting a defensive response to criticism of the process or their work and the expressed attitude that wildlife managers would not change their behavior.

The WGFD case provides some limited support for the themes arising from the Colorado contract administrator's interviews. While differences in agency organization and purchasing systems do not provide direct comparisons, common concerns and similarities are present. WGFD informants collectively identified similar themes that included: increased procurement system complexity; increased use of grants and grant funds; grant contract processing difficulties; increased agency involvement in collaborative management activities; difficulties arranging financial support for collaborative efforts; high levels of vendor-staff familiarity; and many long-term vendor-WGFD relationships. Another similarity was the attributes assigned to the biological and purchasing staffs. Similar to the CDOW, the WGFD biological staff

stereotyped the procurement staff as impediments to accomplishing their work, uncaring about wildlife needs and ignoring local concerns and needs. Procurement staff stereotype biologist as being inattentive, sloppy and dismissive of procurement and administrative requirements.

Discussion

The CDOW's internal contract decision process that emerges from the informant's comments is one governed by the interaction of systemic and institutional factors. The institutional wildlife management paradigm that emerges shares features similar to those identified in literature on change in wildlife management and public engagement (Jacobson and Decker 2008, Buck 2009, Gigilotti et al. 2009, Jacobson et al. 2010). Institutional elements inform internal decisions on use of collaborative management contracts and interact with the systemic theme components to further restrict the consideration and application of collaborative management contracts for wildlife management. Public administration literature has recognized the impacts of experience; institutions and professions on government agencies' capacities and performance in "indirect government" settings (Kettl 2002b, Cooper 2003, Frederickson and Smith 2003, Kettl 2006). The elements noted in this result (Figure 7.6) differ from the public administration literature in the areas related to the influence of past experience; institutional-profession derived boundaries on what is acceptable to contract; and, the effect potential partners has on the extent collaborative management contracts are used.

The public trust responsibilities, professional management, management efficiency and instrumental goals maintain their influence and are promoted directly or indirectly as desirable characteristics of wildlife management (Organ et al. 2010). Interview content characterized professionalism, control, expertise, wildlife agency authority and privileging wildlife management as important institutional norms which are shared within the state wildlife agencies.

The existence of a wildlife management paradigm/institution construct and its impact on the inclusion of third party contractors in wildlife management shares features with the observations made on state wildlife agencies us of other public engagement activities (Kennedy 1985, Nie 2004a, Jacobson and Decker 2008, Buck 2009, Gigilotti et al. 2009, Decker et al. 2011). The interaction of institutional features, boundaries and capacities has also been reported in other organizational settings (Eisenhardt 1988, Brinkerhoff 2002, Brown and Potoski 2003b, Thoenig 2003, Brown et al. 2006, Zietsma and Lawrence 2010, Koliba et al. 2011).

The system theme component of the decision process is characterized by the informants as inhibiting contract use and is largely outside of the state wildlife agency's control. The system's sub-theme elements includes: staffing levels; procurement system cost; time and data conflicts from procurement requirements and biological systems; and, few qualified contractors. Several of the elements of this group are also part of the state's control and accountability functions. The systemic theme interacts with the institutional theme indirectly by communicating the contracting systems expected requirements and performance.

Decisions on use of third parties and collaborative management contracting are a decentralized and follow the described decision model (Figure 7.3). The distributed decision making provides considerable discretion to the managers. The decision model derived from the CDOW interviews and supported by the WGFD, share common descriptive features with other reported government contract decision processes (Brown and Potoski 2003b, Cooper 2003, Frederickson and Smith 2003, Van Slyke 2003, Hefetz and Warner 2004). However, the wildlife decision model elements link to the systemic and institutional themes reported here. Both the WGFD and CDOW report similar contracting decision elements suggesting that state wildlife

agencies apply similar considerations when evaluating options for use of collaborative wildlife management contracting.

State wildlife agencies, as trustees lacking full control over the assets required to fulfill their responsibilities and face an inherent need to use collaboration to address two key issues arising from the misalignment of trust responsibilities and authorities and increased involvement of the trust holders in all aspects of wildlife management (Trauger et al. 1995, Gill 1996, Nie 2004a, Jacobson 2008a, Buck 2009, Gigilotti et al. 2009, Bacheller et al. 2010, Jacobson et al. 2010). This study identifies the formal state government's accountability and control systems and the institutional characteristics of the wildlife agency as negatively influencing use of collaborative management contracts by state wildlife agencies. The state's procurement system restricts collaboration approaches directly through exclusion of some types of agreements, adding cost and creating uncertainty about collaborative approaches requiring contracts. The institutional and professional norms identified informally limit the scope of collaborative options (Wondolleck and Yaffee 2000). Protecting an agency's "turf", as seen in the expert and authority narratives negative influences collaboration (Bardach 1996, Agranoff 2007) and incombination with the preference for institutionally compatible contract partners further narrows the scope of potential collaborative based actions.

The accounting records on contract use by the CDOW show relatively stable contract numbers while the CDOW's available fiscal resources increased during a 12 fiscal year period and full time employee numbers were stable. The informants note that work task and wildlife management needs exceeded the agency's available capacities. However, the increase in available resources and increased service demands led to only small increases in collaborative management contracts over the 12 year period. The conclusion based on these data is that the use

of collaborative management contracts is essentially unchanged in the face of reported needs. From the CDOW contract accounting records, collaborative efforts fall into either development of wildlife species management information or habitat protection or management through grants. The species information would match the skills needed element in the decision model and institutional theme. The grants for habitat related actions fit with the areas that require collaboration to accomplish as noted in the introduction section.

This exploration of state wildlife agencies use of third party contracts in state wildlife management supports the hypothesis that these agencies apply decision criteria that include elements that differ from the more general criteria reported in other government settings. Use of collaborative management contracts are limited by the interaction of the state's contracting system and the wildlife agencies internal institutional elements. Expanding the use of collaborative management and the contracts needed to support of those efforts will require state wildlife agencies to address capacity and boundary limitations imposed by the states procurement systems and agencies own institutional characteristic. Near term change will require engaging procurement personnel in collaborative efforts to address wildlife specific implementation needs. Adding individuals skilled in procurement and contract management into program areas to assist managers may also provide some immediate and small scale relief. In the long term, legislative change to accommodate the implementation needs of collaborative processes within state procurement systems would be expected to require both demonstrated need and external support for changes. Institutional characteristics which limiting collaborative contracting share some characteristics and are compatible with the concerns of those in the agency change literature cited earlier. State wildlife agencies considering their future trustee responsibilities will find addressing the inclusion of collaborative management contracts and

inclusion of third party contractors compatible with the expanded trustee responsibilities described in this literature. Efforts to address the institutional issues outside of the agency change approach should look to the organizational and cultural change literatures for guidance and suggestions for practice and implement suggestions.

Limitations.– The use of interviews as a basis for this analysis is subject to the limits imposed by the data collection method itself, the investigators skills and the analysis approach. Using contracts to structure interviews focuses the interview content and limits the consideration of other types of collaborative efforts. Other non-contract based collaborative efforts by state wildlife agencies are acknowledged. However, this study focused on the actions that shared resources or authorities with outside parties through contracts.

The potential for informant bias exist in the interview content. Multiple interviews and confirmatory approaches with other informants were applied to reduce the likelihood of undetected bias or reflexivity by an informant. The interpretation and development of the themes arises from the investigators understanding and interpretation of the interview content. The investigators work experience with state wildlife agencies may provide a unique insider's viewpoint. However the experience could also result in a bias based on familiarity.

Survey methods would provide the opportunity to explore specific topics with larger numbers of participants that is was not practical using interview methods applied. Survey methods would also allow expansion to additional state wildlife agencies. This study also identifies the tensions between the formal control and accountability mechanisms in state government and state wildlife agencies internal evaluation and decision elements. The results suggest the interaction of the control or accountability requirements and collaborative components are more frequent and difficult to solve when received grant funds are used by state

wildlife agencies for collaborative projects. The grant funds potentially bring added accountability and collaboration/partnership requirements into the states already complex accountability processes. Examining these tensions in what are essentially four party arrangements (grantor, state accountability, state wildlife agency, and grantee selected by the state wildlife agency) would further understanding the barriers and limits currently imposed on collaborative management contracting at the project level.

8) CONCLUSION

State wildlife agencies face increased demands for wider public engagement in wildlife management and increasingly urgency habitat management demands (Jacobson and Decker 2008). Much of the literature in this area of wildlife management focuses on public engagement initiatives and moving away from an expert based wildlife management paradigm to a more collaborative management approaches (Gill 1996, Nie 2004a, Jacobson and Decker 2008, Buck 2009, Organ and Bacheller 2009, Bacheller et al. 2010, Decker and Jacobson 2011). These literatures often link the agencies trustee role from the public trust doctrine to suggested changes in agency governance. The literature on wildlife agency transformation stresses the importance of developing local understandings and management approaches but with limited attention to implications of devolved of decision making within the agency. Meanwhile, habitat management remains a difficult issue which has always required state wildlife agencies to collaborate or exchange resources with landowners. This study provides further insight into specific characteristics of contracting which influence the implementation of collaborative management projects. The results provide a mixed picture of the use of collaborative management and its implementation where decisions to use contracts are made at lower organization levels under the influence of procurement system issues and institutional influences. In the CDOW case, the result is essentially stable levels of collaborative management contract use over a 12 year period.

This case study of the CDOW's use of contracts explored selected types of contracts characterized as collaborative management contracts for changes in numbers or total value. These contracts types were used as direct indicators of changes in the extent of collaborative project implementation. As a frame of reference, the CDOW entered into similar numbers of contracts annually over 12 years but the total annual value of the contracts varied widely. The

variations in total contract values are primarily attributable to expenditures on capital property acquisition and grants. Grant and capital property contracts are statistically related to the amount of non-traditional funding available to CDOW. During the same period, full time employee numbers were stable and the amount of traditional funds available increased each year. Analysis of the CDOW accounting data on use of contract types identified as collaborative management found that the numbers increased slightly early in the 12 year period while remaining essentially stable since. The change in total value of these contracts was not statistically significant. No statistically significant increases in the number of NGO or government contract partners were found. Increased use of third party contracts is suggested as one mechanism that government agencies apply to complex problems and involve multiple interests (Salamon 2002b, Cooper 2003, Goldsmith and Eggers 2004). The previously noted literature on the complex management issues faced by state wildlife agencies would suggest collaborative management contract use would increase over time. In the CDOW's case collaborative management contract use was relatively stable. This invites questions about what is an appropriate use level, and are contracts an appropriate measure? Contract use is recognized as an incomplete surrogate for all collaborative actions of a state wildlife agency. Contracts capture an important element of collaborative management actions by recording the funds and authorities shared with third parties. However the contract data and interview content address collaborative contract use and are not a basis to speculate on appropriate use.

Agency theory was applied at the implementation level to characterize the relationships between procurement and wildlife staffs and wildlife staff and contractors. This application also provides insights into the tensions between the state's formal control and accountability systems and the implementation of collaborative management actions. Conflicts between the procurement

and wildlife staff arise from procurement's goal to comply with fiscal and accountability requirements and wildlife's goal to implement wildlife projects. The conflict is characterized as a control issue. This result highlights the important role played by government parties that are often subsumed into a unified state participant in collaborative management discussions and seldom considered as separate participants in collaboration theory discussions. Importantly, they may act more as principals in principal-agent arrangement rather than a collaborator. The impact limits implementation directly and indirectly through reducing the interest of potential partners to investing time in collaborative efforts. Future investigation of government agencies internal implementation challenges would provide additional insight into the capacities required to develop and implement collaborative management efforts that require contracts to share resources.

Interviews with CDOW staff, WGFD staff, contractors and contract administrators provided insights that were not available through accounting records. Wildlife agency staff interviews describe a contracting environment with limited numbers of suitable contractors many of whom have long term relationships with the agencies. This is particularly true in the case of some educational institutions and wildlife interest nonprofit organizations. The long term relationship descriptions share many aspects described in the trust based contracting (For example Milward and Provan 2000, Brown et al. 2006, Agranoff 2007, Brown et al. 2007, Van Slyke 2009) rather than a self-interested based relationship as described by agency theory. The described limited numbers of skilled contractors with long term relationships links the institutional elements to boundaries around tasks for third party implementation. When trusted third parties are defined in part by the existence of long term relationships, the effect is to reinforce the use of existing partners and limit development of additional partners.

Wildlife management challenges, particularly management of habitats are not reported as decreasing. Habitat and complex management questions have always required some collaboration with landowners and other stakeholders. More recent efforts to transform state wildlife management approaches target increased engagement of interest groups and collaboration by state wildlife agencies. Implementation of many collaborative management outcomes requires the use of contracts draw on the capacity to put the contracts in place and manage them to completion. Suggests on areas state wildlife agencies consider to increase their capacities to implement collaborative management projects follow. The suggestions require surfacing a set of assumptions about the environment state wildlife management agencies are part of:

- Collaborative management in state wildlife programs will continue to expand and as a direct result increase the use of collaborative management contracts.
- The current political climate does not favor changes to exempt or reduce the procurement and purchasing oversight of state wildlife agencies.
- State wildlife agencies are unlikely to change the current distributed contract decision models.

Acknowledging the literatures diffuse approach to capacity descriptions, the following recommendations attempts to apply a pragmatic approach to recommendations state wildlife agencies could implement and address needs through this analysis.

The limited number of contractors issue is heard in the context of both direct and collaborative management contracting scenarios. A limited pool of contractors makes all agency programs more susceptible to changes in the contracting environment from the legislature, courts or administration changes. The limited pool of "suitable" contractors creates a brittle system with

limited resilience to change. The state wildlife agency has little capacity to respond to reductions in the availability of suitable contractors. The limited capacity increases the risk associated with use of third party contracts and heightens the potential for conflict within the contract procurement chain. State wildlife agencies could increase capacity by developing additional contract partners through actions that:

- Maintain a reliable contract volume in key subject or management areas.
- Locate, encourage and develop contract partners.
- Maintain existing contractors but not to the exclusion of adding new contractors.
- Explore expansion of the concept of including development of contracting entities as part of collaborative partnerships to facilitate implementation.

The state wildlife agencies understanding or mental model applied to contracts is largely based on commodity procurement i.e., buy an item or report. Agencies are encouraged to maintain that view by state procurement systems that are constructed and largely administered to purchase commodities. Preferences for internal service provision and control also favor the commodity contracting model. However, staff working in collaborative management programs or with indirect service provision identify the state's procurement system and internal attitudes about contract use as impediments. Collaborative management approaches fit with the reported locally applied contract decision model. However decisions to increases collaborative management and the accompanying contracts will require added capacity to design, manage the contract process and assist in monitoring. The need is magnified with multiple contract partners and collaborative efforts to address complex problems. While the skills can be developed or acquired by hiring, to be effective they need to be available to the agency managers charged with implementation rather than as a centralized function responding to the state's procurement

system. Beyond the interpersonal skills need to interact with multiple parties, the skills sets should include:

- Contract design skills to decrease the procurement and implementation difficulties associated with collaborative management contracting.
- Assist managers with implementation, management and monitoring of complex contracts and projects.
- Horizontal management skills needed to interact with collaborative project partners and the state wildlife agency.

The managers of state wildlife agencies are faced with two different tasks related to contract use in a collaborative and decentralized wildlife management environment. An important task is fostering institutional understanding and the changes needed to reduce conflicts between the traditional state wildlife management paradigm and the use of collaborative management approaches. Supporting and cultivating the skills and professional comfort needed in the indirect and less controlled collaborative approaches is directly related to the state wildlife agencies success in meeting their public trust responsibilities. Internal attention to and support to agency staff should include:

- Directly action to understand and reduce conflicts and barriers between the procurement/accounting staff and wildlife agency staff.
- Agency leadership participation in procurement and contract policy development with the procurement/accounting agencies and with the agencies internal staff.
- Deploy and maintain web based expert information systems and agency relevant training.

- Act to increase trust and reduce negative stereotyping.
- Emphasize the role and importance of collaboration the use of collaborative management contracts to improve wildlife management programs.

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APPENDIX 3.1 LETTERS OF SUPPORT

STATE OF COLORADO

Bill Ritter, Jr., Governor
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE
AN EQUAL OPPORTUNITY EMPLOYER

Thomas E. Remington, Director
6060 Broadway
Denver, Colorado 80216
Telephone: (303) 297-1192
wildlife.state.co.us

For Wildlife-
For People

November 23, 2009

Mr. Robert K. Towry
Department of Forestry, Rangeland and Watershed Stewardship
230 Forestry Building
Campus Delivery 1472
Fort Collins, CO 80523-1472

Dear Mr. Towry:

Thank you for your letter of November 6, 2009. This letter is in response to your request for a letter documenting the Colorado Division of Wildlife's knowledge of and interest in the research project you have proposed under the general title of "State Wildlife Agency Capacity and Their Use of Wildlife Management Contracting".

The Colorado Division of Wildlife remains interested and supportive of your proposed research with Dr. Tony Cheng as your advisor and principle investigator. The Colorado Division of Wildlife continues to be interested in and willing to participate in the project by provision of accounting data and access for interviews or surveys of employees as described in the study summary and discussions of the project. As previously noted, employee participation is subject to other demands on agency personnel or resources. The Division of Wildlife utilizes and/or collaborates with a variety of outside entities to fulfill our mission, and we feel we can both inform and be informed by your project. As your data collection efforts begin, please continue to coordinate your efforts through me or Assistant Director Jeff Ver Steeg.

I look forward to updates on your research.

Sincerely,

Thomas E. Remington

Thomas E. Remington
Director

WYOMING GAME AND FISH DEPARTMENT

5400 Bishop Blvd. Cheyenne, WY 82006
Phone: (307) 777-4600 Fax: (307) 777-4610
Web site: http://gf.state.wy.us

December 14, 2009

Mr. Robert K. Towry
Department of Forestry, Rangeland and Watershed Stewardship
230 Forestry Building
Fort Collins, CO 80523-1472

Dear Mr. Towry:

This letter is in response to your request for continued participation of the Wyoming Game and Fish Department in your proposed research project entitled "State Wildlife Agency Capacity and Their Use of Wildlife Management Contracting".

The Wyoming Game and Fish Department remains interested in the results of this study and we look forward to working with you and your advisor and principle investigator, Dr. Tony Cheng, toward the completion of this project. We will continue to participate by providing accounting data and access to our employees as described in the project summary. As previously discussed, employee participation is subject to other demands on agency personnel or resources. As your data collection efforts begin, please coordinate your efforts through our Human Dimensions Coordinator, Susan Boston.

We look forward to updates on your research.

Sincerely,

Gregg Arthur
Deputy Director

APPENDIX 7.1 OPEN (FREE NODE) CODE NAMES, DESCRIPTIONS AND CODING COUNTS.

Name	Description	Number Of Sources Coded	Number Of Coding References
AG Office CO	Comments from or about Attorney General office and Controllers office.	1	35
Agency Behavior	State agency actions or behaviors related to contracts or contractors. Note may be over-coded with other nodes such as problem descriptions, positive outcomes etc.	27	771
Agency Mission Overlap with NGOs	Mention of overlaps in NGO missions and agency mission.	17	155
Agency Section or Unit	Descriptor of the organizational unit and or position held by interviewee - includes state, NGO and for profits under the agency title. Limited to general identification of interviewee's location or role.	15	24
Agenda Setting by Outside Groups	Use of money, partnerships etc to attempt to set agency agenda via indirect tools. Direct attempts using legislation or administrative tools are coded under challenges to agency.	20	98
Annoyance - Anger	Expression of anger or annoyance about contracting, contracting process, contractors or other features of contracting.	8	14
Aquatic Habitat WGFD	Comments from or about Aquatic Habitat Staff functions in Wyoming Game and Fish Department	2	52
Aquatic Section CDOW	Comments from or about the Aquatic Section.	2	64
Biological Services WGFD	Comments from or about Biological Services Staff functions in Wyoming Game and Fish Department	1	48
Bureaucracy	References made to bureaucracy, bureaucratic processes, and actions by individuals or similar elements. Includes accounts of actions that may also be coded as other actions.	27	228
Capacity	References to capacity of agencies or contractors. Includes reference to lack of or availability as well as sources of capacity.	26	385

Appendix 7.1 Continued.

Name	Description	Number Of Sources Coded	Number Of Coding References
Capital Construction Specific	Features, situations or actions specific to capital construction projects	1	45
Challenges to Authority	Identified challenges to state wildlife agency policy or position including challenges to agency as the state wildlife expert or wildlife decision authority	20	96
Collaboration and Contracting	References to collaboration and its relationship to contracting.	27	264
Collective voice	Assumption of or use of "organizational we - us " collective or group voice in reporting circumstances or events where the intent is to invoke a group or organizational view point.	25	250
Consequences From Contracting	Description of consequences of contracting - all types	27	281
Contract Support Services	Reference to individuals, sections, units or other groups that do or respondent thinks should provide support in contract development and administration.	13	89
Contract System Change Suggestions	Suggestions to modify or improve contracting process	20	73
Contracting Decision Factors	For agencies -Why contracting is used or how decisions are reached on use of contracts or staff. For contractors- Factors influencing bidding or accepting contract work.	27	396
Contractor Behavior	Contractor actions or behaviors related to contracts, contract outcomes, and interactions with agency or interaction with others as part of contracts with agency. Note may be over-coded with nodes such as positive or negative outcomes etc.	27	431
Contractor Involvement in Agency Policy	Notation of contractor involvement or avoidance of processes dealing with agency policy, management decisions or administration. May be over-coded.	19	68
Contracts Used When	Conditions or circumstances leading to contract use by agencies.	27	142
Control	Statements about risk posed by contracts, managing or controlling contract work or outcomes, and post contract response to issues. Includes noted steps to avoid, manage or respond to risk or challenges posed by contracting, contractors or other parties.	24	186
Cultural Elements in Organizations	Statements that identify refer to or describe organizational level beliefs, norms or expected/anticipated behaviors that influence agency contracting.	26	177

Appendix 7.1 Continued

Name	Description	Number Of Sources Coded	Number Of Coding References
Development of Contract Partners	Identifying partner-collaborative considerations around the need to develop maintain or expand contractor pool or develop strategic partnerships.	24	96
DNR Contacting	References from or related to DNR contracting unit	6	98
Engineering Section CDOW	Contracting comments related to or from the Engineering unit.	1	58
Field Operations CDOW	The Field Operations (regions areas and DWMs) - over coding to identify comments to field operations.	3	118
Field Staff- Biologist	Identification coding for Biologist who are non-supervisory and assigned to field stations (not in a central office).	3	3
For Profit Contractor	All for profit contractors. Over-code to identify comments by private companies or individual contractors.	4	122
Frustration	Statement of or description of frustration due to contracts, contract rules, contract process, contract management or results.	19	74
Good Contract Features	Characteristics of contracts identified as important for positive contract outcomes or experiences.	22	60
Limitations in Contracting	Expression of limits, boundaries or drawbacks in contracts or contracting process.	27	280
Management-position	Positions identification for agency managers through first level supervisors. Identification of agency positions falling between top administrators and line supervisors.	7	11
Negative Outcomes	Experiences, outcomes or actions identified or described as negative, unwanted, undesirable or regretted.	27	299
Not For Profit Contractor	Not for profit entities which may be referred to in transcripts as NGOs but are distinguished by this code from for profit entities. May be use as over-code to specifically identify comments made by non-profits.	18	183
Paradoxes	Participant identification of or description of situations encountered in contracting that are paradoxical in nature. May not be described by participant directly as a paradox but commentary will have contrasting ideas, needs or outcomes in close proximity in the transcript and covering the same subject.	11	62

Appendix 7.1 Continued.

Name	Description	Number Of Sources Coded	Number Of Coding References
Negative Outcomes	Experiences, outcomes or actions identified or described as negative, unwanted, undesirable or regretted.	27	299
Not For Profit Contractor	Not for profit entities which may be referred to in transcripts as NGOs but are distinguished by this code from for profit entities. May be use as over-code to specifically identify comments made by non-profits.	18	183
Paradoxes	Participant identification of or description of situations encountered in contracting that are paradoxical in nature. May not be described by participant directly as a paradox but commentary will have contrasting ideas, needs or outcomes in close proximity in the transcript and covering the same subject.	11	62
Personal Relationships	References to the existence of, need for, or importance of individuals, relationships between individuals or specific individual's roles in developing, managing, maintaining or enhancing a contracting relationship with some part of the agency.	17	75
Political Issues From Contracts	Political issues or actions within or a result of contracts.	23	86
Positive outcomes	Contractor or agency descriptions or references to positive contracting experiences, outcomes or actions from use of contracts.	26	201
Preferences used in contracting	Characteristics, skills, background, abilities or other preferences identified as criteria considered in selecting contracts or contractors.	25	153
Problem Descriptions	Problems described or attributed to contracting or contractors. Note may be over-coded with other nodes that further characterize the problem described.	27	789
Regret	Expression of regret in reference to contractors, contracting or contracting process.	2	3
Relational Contracting	Contracting applications or processes that would or could be considered relational contracting as described in the literature. I.E. could include open-ended, mutually developed task, mutually agreed goals, long term and/or not product based.	24	159
Resource Support Section- CDOW	References specific to Resource Support Section of CDOW. Maybe used as over code to identify section specific comments.	2	37
Species Conservation Section CDOW	Content that is specific to Species Conservation Section CDOW. Maybe used as over code to identify content specific to this section.	7	301
Staff or Contractors	Use of staff or how staff is or should be used relative to contracts and contractors.	24	178

Appendix 7.1 Continued.

Name	Description	Number Of Sources Coded	Number Of Coding References
State Contracting Process	References to the state contracting processes including: rules, administration, processes, requirements, approvals and other features.	27	630
State Government Issues	References to issues of state government politics or administration that impact contracting by agencies.	19	78
Strategies Used to Avoid Contract Problems	Descriptions of actions used to avoid difficulties in state contracting process. Includes avoidance, work arounds, and efforts to deal with collaborative or open ended projects.	24	96
Terrestrial CDOW	Terrestrial Section CDOW specific references within the transcript. Over coded to identify specific comments from sources in this section.	3	36
Terrestrial Habitat WGFD	Comments from or about Terrestrial Habitat Program administration functions in Wyoming Game and Fish Department	2	68
Timing Issues Related to Contracting	Issues specific to matching contracts, budgets, contract processes and administrative processes with the time frame needed or available for a project.	15	49
Training	References to types of training given or types of training needed in agency contracting	18	81
Transactional Contracting	Descriptions of contracting processes or contracts that are considered transactional or commodity contracting as described in the literature. I.E. commodity specific purchases, multiple sources, competitive bidding - smart buyer characteristics.	11	47
Trust	References to existence of, development of, loss of or need for trust between agency or agency employee/s and contractor. May also include references to expertise, behavior, experience or other characteristics that are identified as creating or maintaining trust between agency and contractor.	22	140
Wildlife Program Admin WGFD	Comments from or about Wildlife Program Administration functions in Wyoming Game and Fish Department	1	60
Wyoming Game and Fish	Comments related to Wyoming Game and Fish- General	6	236