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Evaluation of North American spider wasp (Hymenoptera: Pompilidae) common names

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Abstract. The use of common names for species and subspecies of North American spider wasps (Hymenoptera: Pompilidae) presents a variety of questions for pompilid specialists as most pompilid taxa are difficult to identify, even under the microscope. Some common names currently being used for spider wasp species are acceptable while others are misleading, unfit and unacceptable. Opinions on the relative value of common names for spider wasps from current Pompilidae researchers are given in the Introduction. Eleven inappropriate common names for North American Pompilidae species and subspecies are identified and discussed in the Results.

Key words. *Anoplius*, *Caliadurgus*, *Ceropales*, *Entypus*, *Hemipepsis*, *Poecilopompilus*, *Psorthaspis*, *Tachypompilus*.

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Introduction

Technological innovation such as digital photography and the internet allows for the first time in human history to photographically document insects and share observations on a large scale, unveiling new avenues of collaboration between amateurs and scientists. This has led to an explosive increase in interest in groups of insects that were completely inaccessible for non-experts a mere two decades ago. With the participation of scientists, websites such as BugGuide.net, flickr.com and iNaturalist.org have accumulated an impressive repository of information on many groups of insects. There is much appreciation in the community for scientists donating their time and effort to identify insect species and provide information on various aspects of their behavior, ecology and taxonomy. Such technological innovation has stimulated the publication of field guides such as Holm (2021) and Kratzer (2022), which have added to a growing list of common names for wasps. What is taking place is nothing short of an entomological revolution that deserves full support since this citizen science movement will ultimately benefit all aspects of entomology and, hopefully, lead to a revival of entomological research in academic institutions (M. Buck, pers. comm.).

The use of common names for fish, amphibians, reptiles, birds and mammals has been a satisfactory way of distinguishing and identifying animals for centuries. These animals are often readily identified because they are large, highly visible and many genera have only a few, easily recognizable species. Insects are another matter. The number of insect species on earth exceeds 5.5 million (Stork 2018). The number of spider wasp (Hymenoptera: Pompilidae) species on earth approximates 5000 (Pitts et al. 2005). Spider wasp species are usually not easily recognizable unless they are placed under the microscope and, even then, males and females of many species are difficult to identify. Many species are black in color and remarkably similar in size and structure. Genera such as *Pepsis* Fabricius (135 species), *Hemipepsis* Dahlbom (~180 species), and *Auplopus* Spinola (~150 species) have numerous similar species, making their identification extremely difficult. Many pompilid species can be identified only by extraction and examination of the male genitalia, a painstaking and delicate procedure. Numerous species of spider wasps are known only from the male sex as some females such as *Anoplius marginatus* (Say) complex are impossible to identify (Evans 1951). For these reasons attaching a common name to a spider wasp species can be an insurmountable task. Some prominent hymenopterists are, in fact, opposed to assigning and using common names for species of Pompilidae.

The use of common names for species and subspecies of spider wasps presents a variety of questions for pompilid specialists. Although trying to be impartial on the use of common names for species of Pompilidae, we were perplexed by the inappropriateness of some names for many familiar and strikingly beautiful North American spider wasp species. In order to get an unbiased view on common names for spider wasp species, we solicited opinions from several pompilid specialists, including ourselves. The responses regarding common names for spider wasp species ranged from "absolutely useless" to "worthy of consideration." Here are some of the more positive opinions on the use of common names for spider wasp and Hymenoptera species in general: (1) I prefer scientific names. However, with Hymenoptera becoming more interesting to naturalists and the general public there is a demand for common names. This is being satisfied by people coining new names on sites like iNaturalist.org and BugGuide.net. Sometimes they turn out well, sometimes not so well (M. Buck, pers. comm.); (2) We need common names to reach communities and the general public. We need common names for conservation, for people to care about nature, but I feel that very specific common names are misleading to the scientific and non-scientific public. I don't like when people try to associate a common name for species that we can barely distinguish! (C. Waichert, pers. comm.); (3) Vernacular names are for people to use. If people want to talk about a particular species, then it makes sense to have a name in a familiar language so that entomologists and lay persons alike can talk about it together (C. K. Starr, pers. comm.); (4) Common names play down the diversity of species. But common names can also be good/helpful because the general public isn't going to learn ICZN rules and classical language (S. C. Crews, pers. comm.); (5) How does one differentiate between [135] species of *Pepsis* using common names? You can use the species epithet, e.g., Mexican tarantula-hawk wasp for *Pepsis mexicana* Lucas, but that doesn't always work. It becomes especially complicated when you add [~180] species of *Hemipepsis* which also have the broad designation "tarantula-hawk wasp." Common names are quite limiting, over-simplistic, and can have a negative impact when educating the public (J. S. Wilson, pers. comm.). Such diverse opinions led to a closer examination of the common names in use for species of North American spider wasps (Hymenoptera: Pompilidae).

Materials and Methods

Photographs and videos of many species of Pompilidae from iNaturalist.org, BugGuide.net, flickr.com, and elsewhere were examined for examples of appropriate and inappropriate spider wasp common names. We tried unsuccessfully to locate and communicate with the individuals who created the many common names for spider wasps on iNaturalist.org and BugGuide.net. We attempted to get answers to our questions by writing the websites producing the common names but received no replies from the individuals responsible for the spider wasp species common name designations.

For this paper, Frank E. Kurczewski solicited opinions on common names for species of Hymenoptera, particularly Pompilidae, from persons who have done, or are actively doing, research in this area of expertise. Kurczewski wrote the initial manuscript, including summaries of the opinions of other researchers on species of Pompilidae. Matthias Buck added new ideas, a comprehensive viewpoint, and alternative positive opinions to common spider wasp names, thereby broadening the original scope of the manuscript. Table 1 was prepared by Frank E. Kurczewski and Rick C. West. West selected and configured the photographs for Plates 1 and 2 after receiving permission to use such images from the respective photographers.

Results

Our examination of North American spider wasp common names revealed 10/21 (47.6%) names that were deemed acceptable or moderately acceptable for use (Table 1). Seven of the 10 names were an epithet of a current or previous scientific name (e.g., The "elegant tarantula-hawk wasp" is a legitimate common name for *Pepsis elegans* Lepeletier) and three others were taxonomically descriptive. Eleven of 21 (52.4%) other common names for North American species of Pompilidae were, in our opinion, cumbersome, misleading, unfit or unacceptable. Common names, like scientific names, are often established unilaterally, as in the case of field guides and on websites such as BugGuide.net and iNaturalist.org. The common names currently in use for species of Pompilidae

Table 1. Acceptable common names for species of Pompilidae, based on usage in BugGuide.net and iNaturalist.org.

Scientific name	Common name
Anoplius americanus (Beauvois)	American blue-black spider wasp
Episyron biguttatus (Fabricius)	Two-spotted spider wasp
Episyron quinquenotatus (Say)	Five-spotted spider wasp
Hemipepsis toussainti (Banks)	Toussaint's spider wasp
Pepsis elegans Lepeletier	Elegant tarantula-hawk wasp
Pepsis mexicana Lucas	Mexican tarantula-hawk wasp
Pepsis mildei Stål	Milde's tarantula-hawk wasp
Pepsis thisbe Lucas	Thisbe's tarantula-hawk wasp
Poecilopompilus interruptus (Say)	Interrupted spider wasp
Tachypompilus ferrugineus (Say)	Rusty spider wasp

were evidently created by individuals without the knowledge or acceptance of present-day researchers on spider wasps. If common names are to be used for North American species of Pompilidae, they should be standardized or regulated so they are descriptively selective, meaningful and useful. More than one person on a single website should be involved in the selection and acceptance of common names for North American spider wasp species, but unfortunately this has not been the case. The inappropriate common names currently in use for North American species of Pompilidae on iNaturalist.org and BugGuide.net are presented below in alphabetical order by scientific name with the common name in parenthesis and a sentence or two on its inappropriateness. A potential hidden advantage of common names over scientific names is that the name can possibly be changed by anyone who has editorial or curatorial status, thereby making available a discussion about their appropriateness or inappropriateness.

Anoplius semicinctus (Dahlbom) (Half-belted blue-black spider wasp)

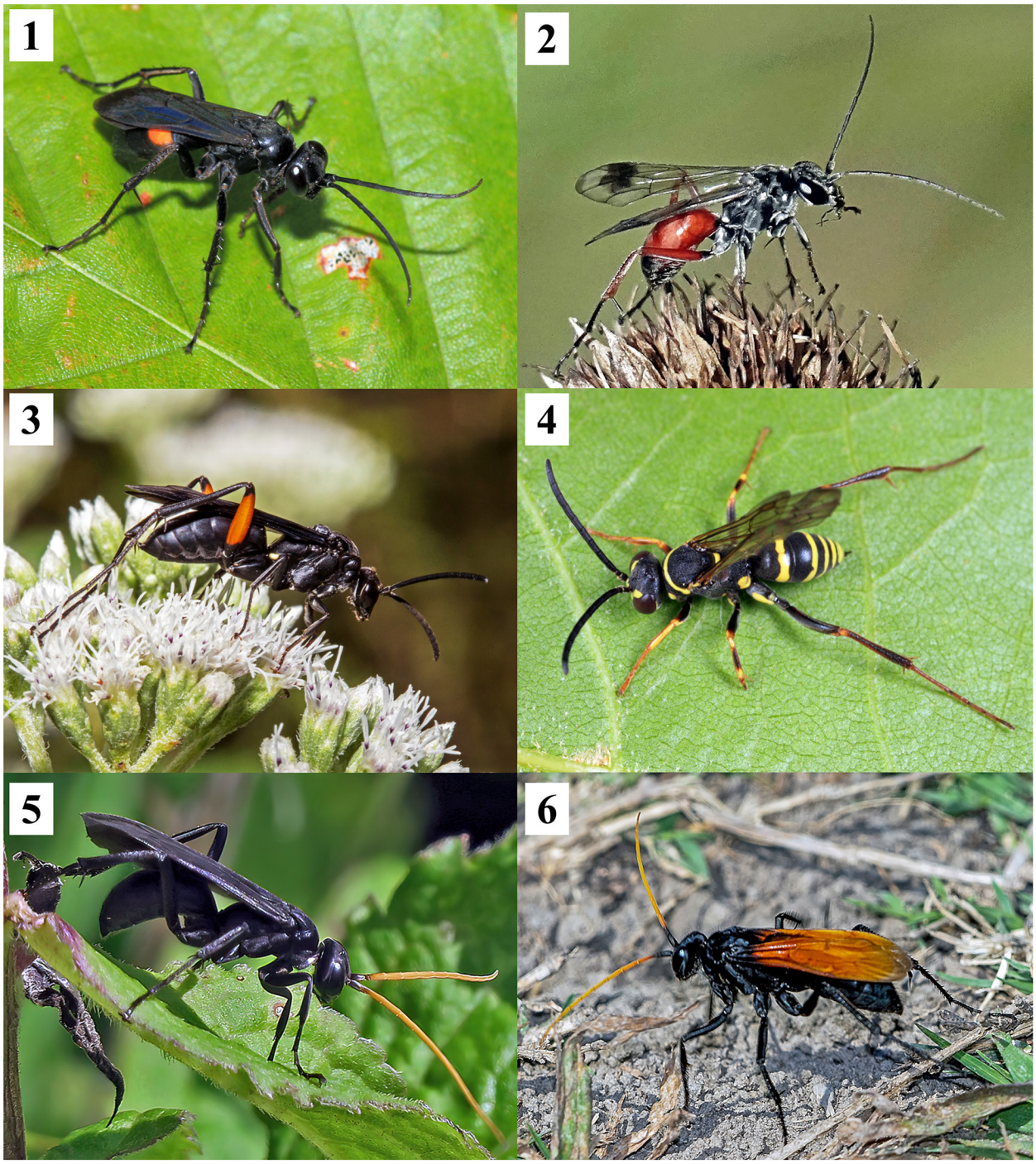
Six words is excessively lengthy for a common name! Blue-black is uninformative as numerous spider wasp species are this color. The Latin name *semicinctus* means "half girdle" or "half belt" and probably refers to the second tergite of the metasoma having a broad band of orange that is partly emarginate medially (Evans 1951; Fig. 1). However, such a taxonomic characteristic occurs in several dozen species of *Anoplius* Dufour, *Ammosphex* Wilcke, *Arachnospila* Kincaid and *Psorthaspis brimleyi* (Malloch) and is clearly not species-specific for *Anoplius semicinctus*.

Caliadurgus fasciatellus (Spinola) (Banded spider wasp)

Banded undoubtedly refers to paired dark spots on the hyaline forewing of this species. These so-called bands are large dark incomplete spots that do not encircle the wing (Townes 1957; Fig. 2). Dark bands or spots on the forewings occur in more than 100 species of North American Pompilidae belonging to the genera *Priocnemis* Schiødte, *Epipompilus* Kohl, *Dipogon* Fox, *Auplopus*, *Ageniella* Banks, *Eragenia* Banks, *Agenioideus* Ashmead, and even *Tachypompilus mendozae* (Dalla Torre). In other words, the common name "Banded spider wasp" could apply to any of these 100+ species!

Ceropales bipunctata bipunctata Say (Two speckled cuckoo spider wasp)

Five words is a lengthy common name! Speckled is defined as "covered with many small spots or patches of color." *Ceropales b. bipunctata* has a few cream-colored spots or lines on the clypeus and scape and a small spot above the hind coxa (Townes 1957), but this species is hardly speckled. The most recognizable taxonomic characteristic of *C. b. bipunctata* is the bright rufous hindfemur (Fig. 3), but there are many other spider wasp species with this characteristic.



Figures 1–6. Habitus photos of North American Pompilidae. **1)** *Anoplius semicinctus* female, Marlboro, Windham County, VT, USA. Photograph © Tom Murray. **2)** *Caliadurgus fasciatellus* female, Rockville, Hanover County, VA, USA. Photograph © Louise Woodrich. **3)** *Ceropales bipunctata bipunctata* female, Hatfield, Hampshire County, MA, USA. Photograph © Sloan Tomlinson. **4)** *Ceropales maculata fraterna* female, Groton, Middlesex County, MA, USA. Photograph © Tom Murray. **5)** *Entypus fulvicornis* male, Fiddler's Creek Preserve, Mercer County, Titusville, NJ, USA. Photograph © Seth Ausubel. **6)** *Entypus unifasciatus cressoni* female, Garland, Dallas County, TX, USA. Photograph © Tracey Fandre.

Ceropales maculata fraterna Smith (Spotted cuckoo spider wasp)

Spot is defined as "a small round mark differing in color from the surface around it." Spotted cuckoo spider wasp is clearly a misnomer for this relatively small black species with numerous yellow stripes and few yellow spots on its body (Townes 1957; Fig. 4). "Striped cuckoo spider wasp" might be a more appropriate name for *C. maculata fraterna*. At any rate, there are dozens of spotted or striped parasitic pompilid species in the tribe Ceropalini, thus nullifying the exclusive use of spotted or striped cuckoo spider wasp for *Ceropales maculata fraterna*.

Entypus fulvicornis (Cresson) (Tawny-horned spider wasp)

The Latin name *fulvicornis* translates in English to "tawny horns" but who, other than a Latin scholar, would know this? Horn is defined as "a hard bony growth on the head of many hoofed animals," particularly ungulates. Furthermore, the antennae [not horns] of this species aren't "tawny." Tawny is defined as "brownish-orange to light brown color." The antennae of *E. fulvicornis* are yellow to yellowish-orange in live individuals fading to dull orange in older specimens (Fig. 5).

Entypus unifasciatus cressoni (Banks) (Cresson's spider wasp)

This subspecies is not the only pompilid with the trinomial *cressoni*, so why should it be singled out as Cresson's spider wasp? *Episyron conterminus cressoni* (Dewitz) and *Poecilopompilus interruptus cressoni* (Banks) are other subspecies so named (Kurczewski and Kurczewski 1968; Snelling and Torres 2004; Kurczewski and Edwards 2012; Kurczewski et al. 2013, 2017). *Entypus unifasciatus cressoni*, with bright orange wings, is a western variant of *E. unifasciatus*, occurring west of the 98th meridian in the United States to California and southward through Mexico and Central America (Townes 1957; Fig. 6).

Entypus unifasciatus unifasciatus (Say) (Eastern tawny-horned spider wasp)

Five words is a long and cumbersome common name! *Entypus fulvicornis* is another "tawny-horned spider wasp" restricted to the eastern U. S., thereby introducing some geographical name confusion! As in *E. fulvicornis*, the antennae of *E. u. unifasciatus* are not "horns" and they are not "tawny" in color. They are similar to those of *E. fulvicornis* in being yellow to yellowish-orange in live individuals (Fig. 7). This taxon is a rather large, attractive, common species that inhabits the United States east of the 98th meridian (Townes 1957).

Hemipepsis ustulata Dahlbom (Flamed tarantula-hawk wasp)

This common name is evidently in reference to the bright orange wings (Fig. 8). "Flamed tarantula-hawk wasp" is a very misleading common name for this species as there are more than 100 species of tarantula hawk-wasps in the Americas from the genera *Pepsis* and *Hemipepsis* with bright orange wings.

Poecilopompilus algidus algidus (Smith) (Frigid spider wasp)

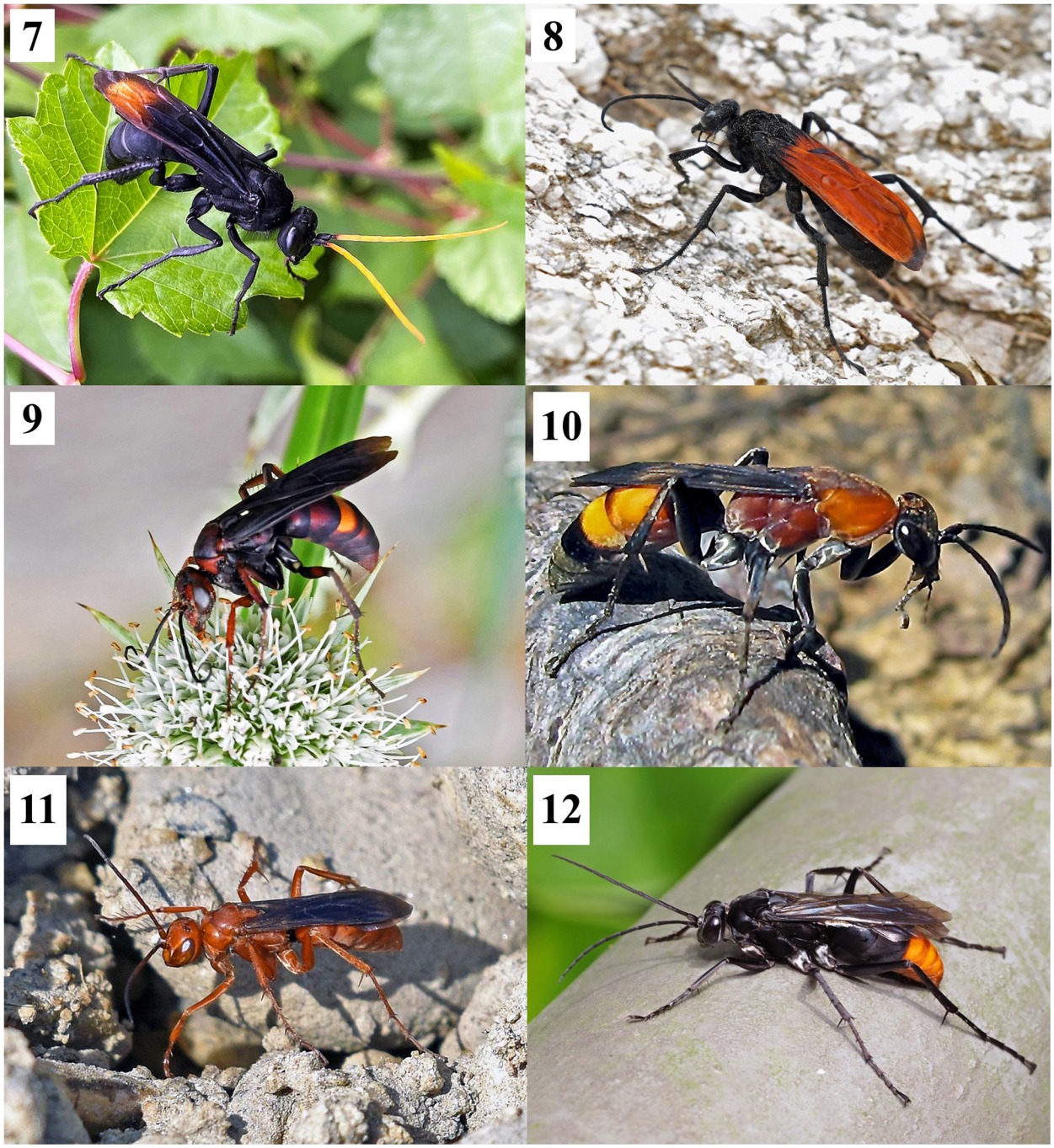
The English derivative of the Latin word Algidus is "chilly." But how many persons other than students of Latin know this? *Poecilopompilus a. algidus* is a rather large, attractive species that preys on rather large, colorful orb-weaving spiders pursuing them on their orb-webs (Fig. 9). There is nothing "frigid" or "chilly" about this hunting activity or the obligate parasitoid relationship with the spider!

Psorthaspis mariae (Cresson) (Fiery spider wasp)

This moderate-size spider wasp is red, orange and black in color, the red and orange colors perhaps resembling the color of a burning fire (Fig. 10). However, the colors of this species are no more spectacular or fiery than those of several other similar-colored species of *Psorthaspis* that resemble male velvet-ants in their coloration and movement or numerous other spider wasp genera of the same color.

Tachypompilus unicolor unicolor (Banks) (Western red-tailed spider wasp)

The entire body of this subspecies, including antennae and legs, is bright ferruginous in color, although the common name implies that only the end of the abdomen is ferruginous (Fig. 11). The overall ferruginous coloration



Figures 7–12. Habitus photos of North American Pompilidae. **7)** *Entypus unifasciatus unifasciatus* female, Rock Creek, Washington, DC, USA. Photograph © Landrum Beard. **8)** *Hemipepsis ustalata* female, Reserva de la Biosfera Sierra La Laguna, Baja California Sur State, Mexico. Photograph © Steven Mlodinow. **9)** *Poecilopompilus algidus algidus* female, Warsaw, Hancock County, IL, USA. Photograph © Angella Moorehouse. **10)** *Psorthaspis mariae* female, Buffalo National River, Centerpoint Trail, Newton County, AR, USA, Photograph © Edward Trammel. **11)** *Tachypompilus unicolor unicolor* female, Rocks National Reserve, Cassia County, ID, USA. Photograph © Steven Mlodinow. **12)** *Tachypompilus analis* female, Twun Tong District, Hong Kong, People's Republic of China. Photograph © Keith Chan.

of *T. u. unicolor* contrasts strikingly with the appropriately named Asiatic red-tailed spider wasp, *Tachypompilus analis* (Fabricius), in which only the apical four segments of the metasoma are bright reddish-orange and the rest of the body is black (Fig. 12).

Discussion

Scientific names suffer from the same malaise as common names. They are often ambiguous or, sometimes, totally inappropriate. Ideally, one should be careful to avoid the use of ambiguous names. In practice, this can be difficult to achieve which, unfortunately, is the case for most pompilid genera in which the species are uniform in appearance. If a name can apply to many species in a genus or other genera, e. g., "Flamed tarantula-hawk wasp" for *Hemipepsis ustulata* or "Banded spider wasp" for *Caliadurgus fasciatellus*, then, this name should be avoided.

In principle one might ask why a certain name is acceptable in Latin as a scientific name but unacceptable in English as a common name? A critic could object that there must be a double standard in place or, at worst, suspect hypocrisy. Why are patronyms acceptable for scientific names and not for common names as certain patronyms recur in dozens of scientific names? Since this is a general problem that applies to many of the examples mentioned, a rationale should be provided as to why there should be different criteria for scientific vs. common names. The meanings of Latin names, obvious only to persons knowledgeable of the language, can hardly be used as an argument against translating scientific names into English as in *Poecilopompilus algidus* (Frigid spider wasp), *Episyron biguttatus* (Fabricius) (Two-spotted spider wasp), or *Episyron quinquenotatus* (Say) (Five-spotted spider wasp) so long as the common name applies appropriately to that species only.

One of the naming principles that common names have in common with scientific names is that they are constructed by combining one element that refers to a higher category e. g., tarantula-hawk wasps, with a species-specific adjective or noun. This can lead to awkward and overly lengthy constructions such as "Half-belted blue-black spider wasp" for *Anoplius semicinctus* or "Eastern tawny-horned spider wasp" for *Entypus unifasciatus unifasciatus*, yet the principle itself is sound and useful. In fact, for didactic purposes it would be desirable if this principle was widely used, although in practice it is difficult to implement because of the uniformity of most pompilid species. Taking all of this into consideration how, then, should common names be formulated? What are the guiding principles? How can the current situation be modified and improved? These are questions that have yet to be answered satisfactorily.

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