FIELD IDENTIFICATION OF *Typha* SPECIES IN HADEJA GASHUA NGURU WETLANDS

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ABSTRACT ✓

Field identification of *Typha* species in Hadeja Gashua Nguru wetlands Nigeria between January\ June 2008. and July\ October 2008. The study was conducted at Gashua Nguru wetland (Yobe and Jigawa states), Nigeria 2008. The three sampling station was established. Aquatic Plant Control information system Table (1996), for identify the species of *Typha species* was used, in three sampling station. Two *Typha* species vwere identified – *T. latifolia* and *T. angustifolia.*Data analysis showed that, there was significant difference between *T. latifolia* and *T. angustifolia* ($P<0.05$).

INTRODUCTION

Typha grass can be found in wetland, sedges and meadows streams, rivers banks and lake edges. The plant is found in areas of fluctuating water level, such as road sides, ditches and reservoirs (Morton 1975). It is an erect perennial freshwater aquatic herb which can grow up to 3 or more meters in height. The leaves are thick ribbon like structure which have a spongy cross- along moving section exhibiting air channels. Typha are found throughout the world and Southern Africa. It is most common in aquatic situations whether in standing or slow-flowing waters. Marshes stream banks, dams and lakes are most commonly inhabited by Typha grass .The muddy substrate of these water bodies help the plants to anchor its rhizomes firmly.(Smith 1999). The subterranean stem arises from thick creeping rhizomes. Flower structure is a dense, fuzzy, cylindrical spike on the end of stem, with a gap 1-3 cm of naked stem between the upper, male portion (stamina) and lower, female (pistil) portion. *Typha spp.* is a clonal monocotyledon with sword-like leaves that grow vertically from the shoot base. The leaves are made of aerenchyma tissue and a large portion of biomass allocation is directed toward sexual reproduction. At maturity the spike bursts under dry condition releasing the fruits. The fruits have bristly hairs that aid in wind dispersal. When the fruits come in contact with water, the pericarp opens rapidly, releasing the seed. The fruits often fall to the ground in dense mats. Vegetative reproduction occurs through an extensive rhizomes system which is responsible for the maintenance and expansion of existing stands (Shekhov, 1974)

The plant is adapted to muddy and wet conditions. The strong fibrous roots that arise from the rhizomes help to anchor the plant so that it can withstand strong winds without being swept away in the water. Owing to variation in water content of marsh habitats, the rhizome structure may show both hydro (water) and Xeric (dry) adaptations. In Typha the prominence of mechanical and conductive tissue indicates the plant Mesophytic (plants capable of coping with both extremes of water and drought) ability due to the presence of abundant storage parenchyma aerenchyma, and hydrophilic tissue. (Smith 1999).The thickened endodermic layer affords means of protection against moisture loss during drought. Since both the mechanical and conductive tissues are well developed, the plants able to grow erect without being supported by the water. Cattails flower in late May and June and sometimes later (up to late July) depending, perhaps on soil and water temperatures as influenced by climate and litter in a stand. The wind-borne pollen attaches in the stigmas of female flower to eventually produce achene's fruit. The elongated embryo and stalk are severed with fine, unmated hairs that aid in wind dispersal. Fruits are mature in August and September. Seeds are very small, weighing 0.55mg each (Keddy and Ellis, 1985). Typha grass causes a variety of problems in Nigeria that are broadly similar to those caused by Typha grass elsewhere in the world (Morton, 1975). Earlier studies (NIFFR, 2002) revealed that, this plant caused problems in Hadejia|Jama`are, Jigawa, Yobe and Kano states. In Nigeria, such problems include interfering with water from flood lands, impeding the movement of boats for transport, fishing and recreation among others. It also interferes with various methods of catching fish; competing with rice in paddy systems, leading to degrading of water quality by adding taints and odours to the water, thus, decreasing dissolved oxygen content. It also alters the flora and fauna of aquatic ecosystems as well as a reduction in light penetration within the aquatic system. This undoubtedly intensified ecosystems degradation with consequent effect on the natural resources, due to over population of *Typha spp.* Unless appropriate management strategies

are applied, the trend might cause economic and ecological disasters to 15 million people in Nguru wetland. The aim of this study is to identify the *Typha* spp in Nguru Wetland, and to find the best management method to benefit the Nguru wetland community.

MATERIALS AND METHODS

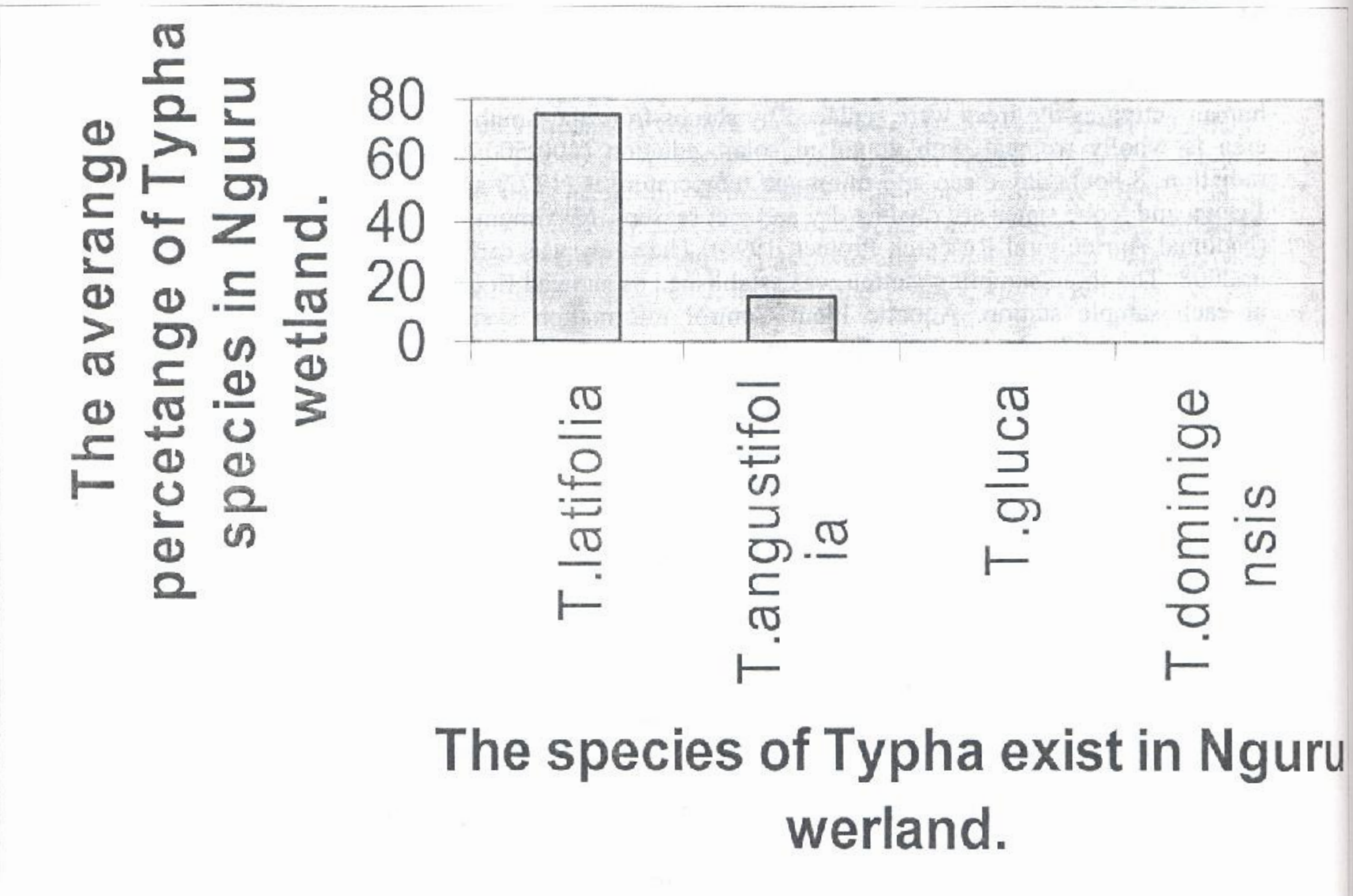
Gashua Nguru wetland is located in the North West Zone of Nigeria, in Yobe and Jigawa states. The vegetation ecology is distinguishable into the Northern Guinea and Sudan savanna. As result of human activities the trees were replaced by shrubs from the South to the Northern boundaries. The area is wholly tropical with abundant solar radiation (400-500 wm-2) incident mostly as beam radiation, 8 hours/day mean and minimum temperature is (17°C) and maximum (40°C) respectively. Jigawa and Yobe states are distinct dry and wet seasons. Maximum rainfall range 305mm to 1048mm (National Agricultural Research Project, 1996). The study was carried out at Gashua Nguru wetland in 2008. The three sampling station was established as showed figure 1. *Typha* species was collected in each sample station. Aquatic Plant Control information system Table (1996), was used for identification of *Typha* species in three sampling station as indicated in table 1.

Table 1 Aquatic Plant information system (1996).

	T. latifiolia	*T. angustifolia*	*T. gluca*	*T. dominigensis*
Appearance	Coarse stout	Slender	Either	Slender
Leaves	Flat	Convex on	Convex on back	Convex on back
x- section	8-15	back	6-12	6-12
width in mm	Tapering	5	Auriculate	tapering
sheaths		auriculate		
Length between female and male	Non	.5-012cm	0-4cm	0.7-4.5cm
Pith color at base	White	White	Yellow buff	White
Female flower bract	Non	Dark brown blunt	Non rarely like ang.& dom.	Light brown Ovate & apiculate

RESULTS AND DISCUSSION

The species of *Typha* identified in Gashua Nguru wetland during the two season 70-75% was *Typha Latifolia* follow by ***T. angustifolia*** as shown in figure 58, 6. The result showed that during wet season the population of *T. latifolia* is lower compared to dry season. While ***T. angustifoli*** increased in population during wet season. This may be associated with facts that *T. latifolia* is less tolerant to higher flood (smith 1984). Studies have showed that *Typha latifolia* is found in the most favorable sites compared to *T. angustifolia* and *T. domingensis* (Gustafson 1976). *T. latifolia* seeds are less tolerant to salt (NaCl) concentrations in the substrate when compared to *T. angustifolia* seeds. However, seeds of both species which had been soaked in salt solution would germinate after being returned to non-saline conditions (McMillan 1988). Typha angustifolia seeds showed no significant germination response when sprouted along a moisture gradient which ranged from 5 cm below substrate to 10 cm above (Keddy and Ellis 1985). Though their appearance seems similar, the simple way to differentiate the two species of Typha is the inflorescent. In ***T. angustifolia,*** there is separation between the male organ and female organ in the inflorescent. *T. latifolia* has no separation between male organ and female organ as shown in plate 1and 2. Other Typha species such as *T. domingensis* and *T. gluca* are completely absent it was observed the two species were restricted to less favorable and more saline habitants (Gustafson 1976). *T. latifolia* have numerous leaves compared to *T. angustifolia*. *T.latifolia* also eliminates habitat and species diversity, and reducing the opportunity for other plants to become established and survive. Shading is a significant effect on other plants (Pianka 1973). In *T. latifolia*, the inflorescent are usually short distinguished from *T. angustifolia*, which is longer (Smith 1999).



. **Figure 2** shown the percentage of Typha species in Nguru wetland During dry season

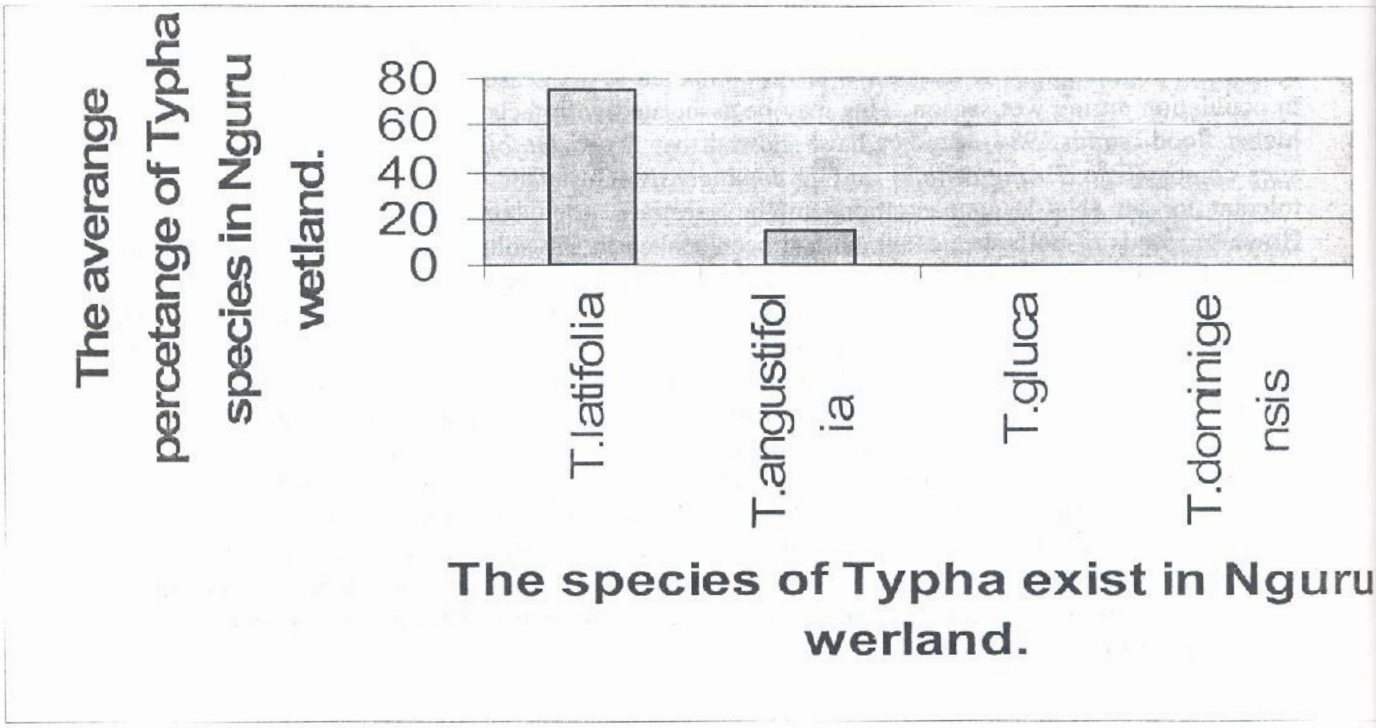


Plate 1 *Typha latifolia*

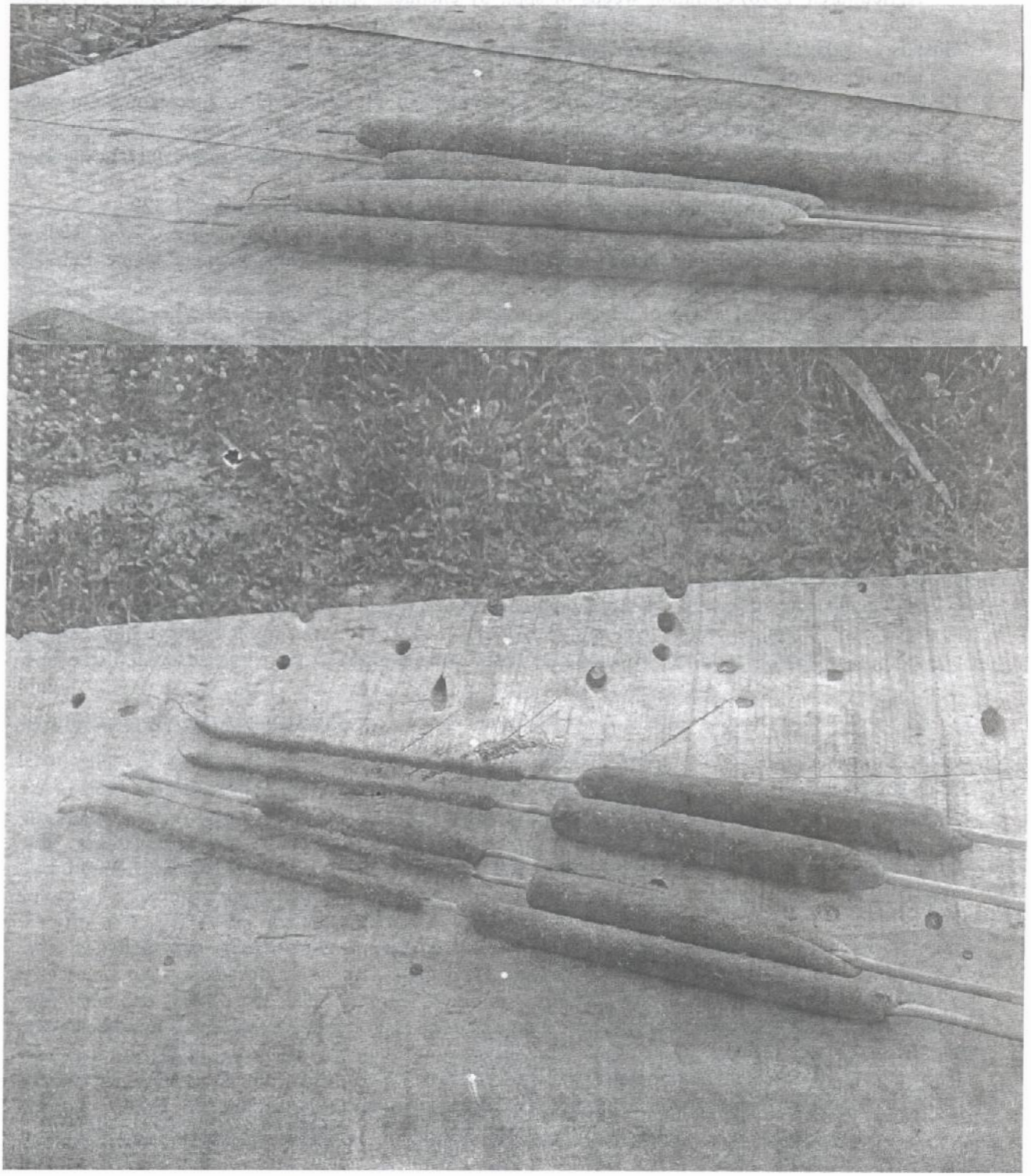


Plate *2* *Typha angustifolia*

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