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PARTICIPANTS IN THE LORICARIID WORKSHOP

Jon Armbruster	Auburn University
Amy Benson	US Geological Survey
Jeremy Brown	Commission for Environmental Cooperation
Walt Courtenay	US Geological Survey
Jan Culbertson	Texas Parks and Wildlife Department
Jeff Fisher	Entrix
Pam Fuller	US Geological Survey
Kelly Gestring	Florida Fish and Wildlife Conservation Commission
Mike Gonzales	San Antonio River Authority
Jeff Hill	University of Florida
Jan Hoover	US Army Engineer Research and Development Center
Howard Jelks	US Geological Survey
Roberto Mendoza	Universidad Autónoma de Nuevo Leon
Catherine Murphy	US Army Engineer Research and Development Center
Leo Nico	US Geological Survey
Carlos Ramirez	Universidad Autónoma de Nuevo Leon
Ramon Ruiz-Carus	Florida Fish and Wildlife Conservation Commission
Bill Smith-Vaniz	US Geological Survey
Oliver Van den Ende	Dynamac, Florida Technological University
Steve Walsh	US Geological Survey
Jim Williams	US Geological Survey





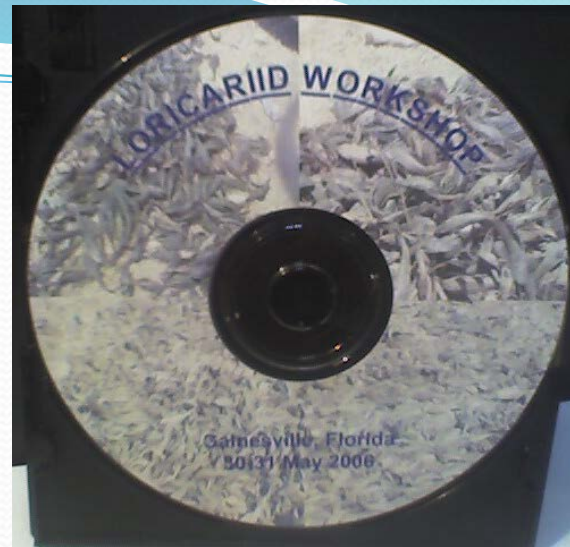




The role of freshwater ornamental fish industry
in Mexico
as an invasive aquatic species pathway.



ROBERTO MENDOZA, CARLOS RAMÍREZ, SALVADOR
CONTRERAS, PATRICIA KOLEFF, ROBERTO ALVAREZ
and VERGILIA AGUILAR



Invasion of Plecos in Infiernillo Dam Socio-Economic Status



Roberto Mendoza, Salvador Contreras,
Carlos Ramirez and Patricia Koleff

April, 2006



THE LORICARIID SUCKERMOUTH CATFISHES IN MÉXICO SYSTEMATICS AND DISTRIBUTION



SALVADOR CONTRERAS BALDERAS, ROBERTO MENDOZA ALFARO, &
CARLOS RAMÍREZ MARTÍNEZ

Environmental Impacts of Suckermouth Catfishes (Loricariidae) in North America: A Conceptual Model

Jan Jeffrey Hoover, Catherine E. Murphy, and Jack Killgore
 US Army Engineer Research and Development Center
 Waterways Experiment Station
 3909 Halls Ferry Road
 Vicksburg, MS 39180-6199

Suckermouth catfishes, native to Central and South America, are established in waters of the United States and Mexico. Species were first introduced in North American waters in the 1950s (Hill, 2002) but did not become problematic or broadly distributed until the late 1990s (Hoover et al., 2004). These non-indigenous populations can raise issues that challenge resource managers and local economies. Presented here is a conceptual model based on recent reports by the press and accounts by researchers working throughout the non-native range of these animals. The model is intended as a tool for identifying potential impacts of introduced suckermouth catfishes on local fauna.

Nomenclature of Suckermouth Catfishes

There are two families of tropical New-World catfishes that possess distinctive bony plates covering their body (Burgess, 1989). The family Callichthyidae is comprised of feret, thin-lipped species, many of which are exploited by the aquarium industry (e.g., *Hoplosternum* spp., *Cordoras* spp.); callichthyids have only two rows of bony plates and have eyes with round pupils. The family Loricariidae is comprised of ventrally flattened, thick-lipped species, which are also exploited extensively by the aquarium hobby (i.e., various genera collectively referred to as "plecos"); loricariids have three or more rows of bony plates and have eyes with lunate pupils. Both families are considered "armored catfishes." The loricariids are sometimes referred to as "suckermouth armored catfishes" or simply "suckermouth catfishes."

In North America, two groups (i.e., genera) of suckermouth catfishes have become established: the armadillo del Rio (*Hypostomus* spp.) and the sailfin catfishes (*Pterygoplichthys* spp.). Both groups are similar in appearance and belong to the same subfamily: Hypostominae. They are readily differentiated, however, by their dorsal fins—short in armadillo del Rio (Fig. 1) and longer in the sailfin catfishes (Fig. 2). It is uncertain how many species of armadillo del Rio have been introduced into North American water (Page and Burr, 1991), but at least four species of sailfin catfishes are documented from the United States (Nico, 1999a; Nico, 1999b; Nico, 2000a; Nico, 2000b; Nico and Martin, 2001). Sailfin catfishes are very similar in appearance morphologically but are highly variable in pigmentation (Fig. 3). They can frequently be distinguished from each other and from armadillo del Rio based on a combination of dorsal, ventral, and lateral markings (Table 1). Taxonomy and relationships among these and other suckermouth catfishes have been described recently (Weber, 1991; Page, 1994; Ambruster, 2004).

Stressor Actions	Effects on Fauna	Receptors				
		Benthos	Fishes	Amphibians	Birds	Mammals
Habitat Preference: Occurrence in warm, shallow water	Animals displaced from springs, seeps, thermal refugia	●	●	●	●	●
	Animals displaced from littoral zone	●	●	●	●	●
Feeding: Grazing on algae and detritus	Incidental loss of other organisms [by ingestion]	●	●	●	●	●
	Reduced algal habitat for phytoplanktonic organisms	●	●	●	●	●
Reproduction: Burrowing into banks to construct nests	Reduced bank stability, increased erosion	●	●	●	●	●
	Reduced stability of substrate, compromised nests of other fishes	●	●	●	●	●
Recruitment: Rapid population growth and high densities	Nutrients monopolized or released	●	●	●	●	●
	Increased competition and interference with other species	●	●	●	●	●

Significant Impacts

- High
- Moderate
- Low