

# The role of the Goodeid Working Group (GWG) in the captive maintenance of the Goodeid fishes



*Ilyodon furcoides*

**John Lyons**  
**2014-15 North American GWG Chair**

# Goodeids were the most diverse and numerous freshwater fishes of central México, but now they are in trouble



Manantlán Stream, Jalisco



Lake Pátzcuaro, Michoacán

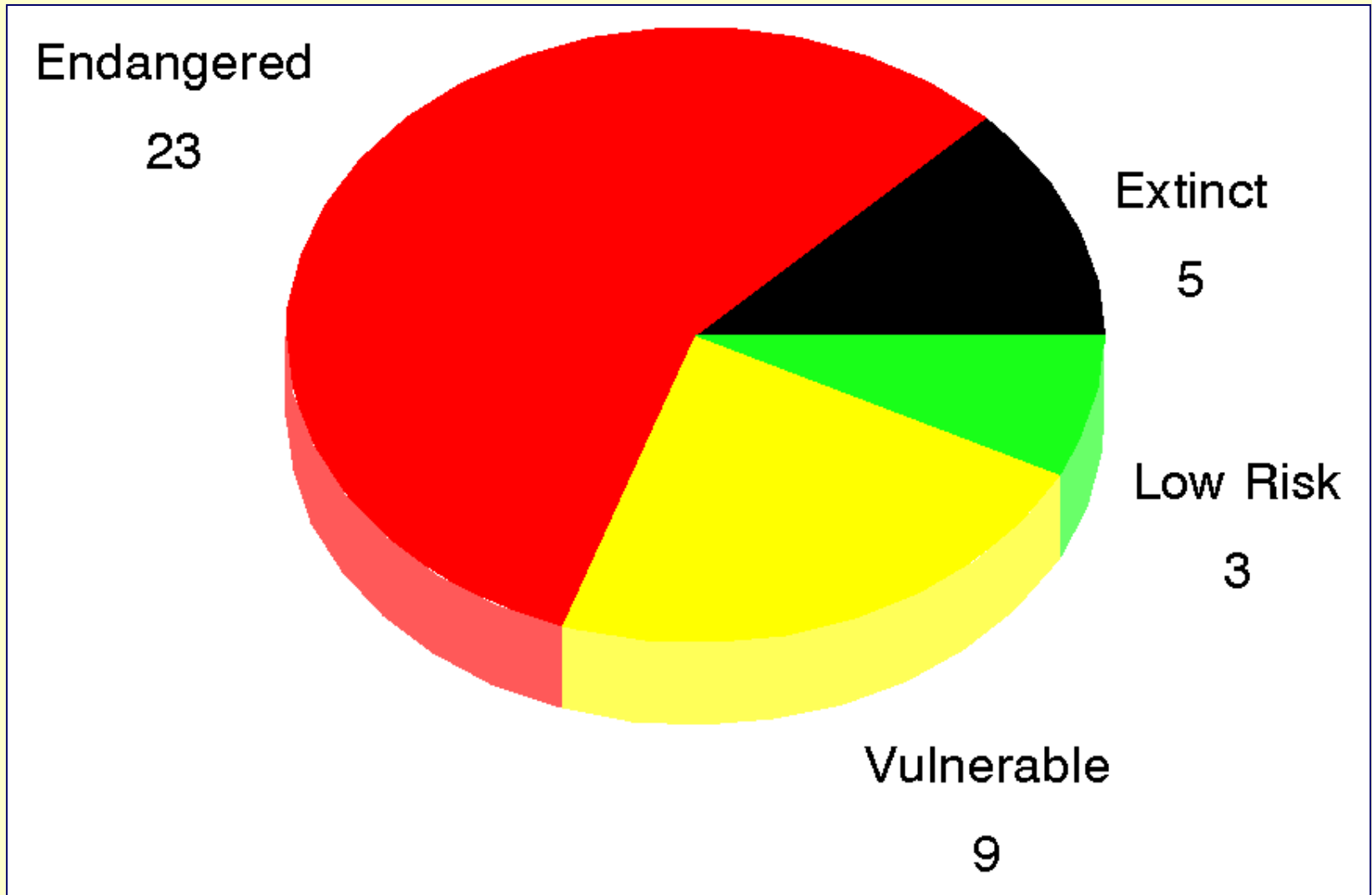


Amado Nervo Springs, Durango



# 2011 status of 40 Mexican Goodeids

*3 extinctions since 2001*











**Arroyo Manantlan, Jalisco**



*Allodontichthys zonistius*



*Ilyodon furcidens*

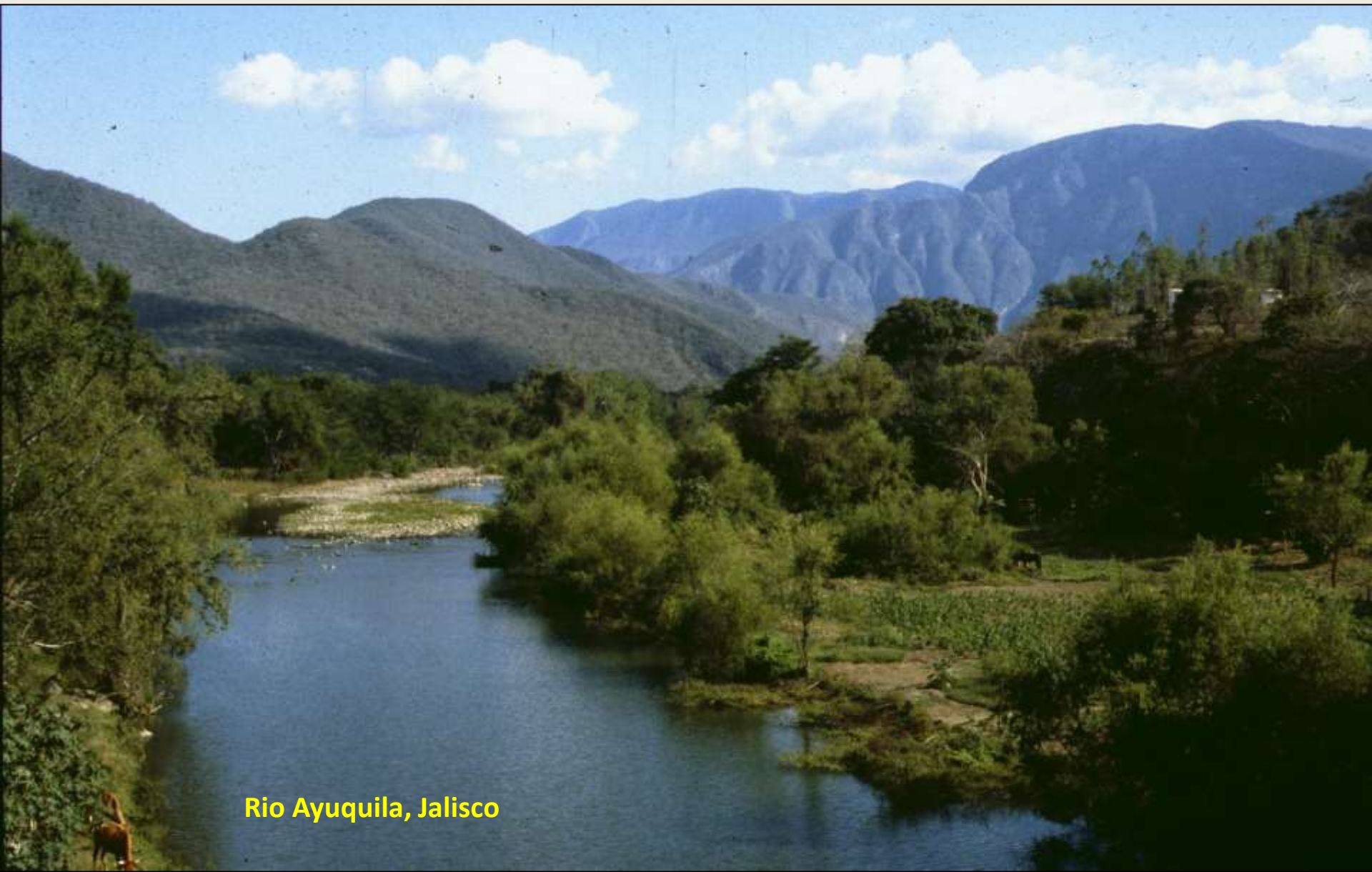


**Rio Cuzalapa, Jalisco**



*Xenotaenia resolanae*





**Rio Ayuquila, Jalisco**

*Vieja synspila*





**Lake Patzcuaro, Michoacan**



*Allotoca dugesii*



*Skiffia lermæ*



Lake Chapala, normal dry season



Lake Chapala, 1991 drought

## Water Shortages

# Pollution



# Invasive Non-Native Species

Tilapia (*Oreochromis* and *Tilapia* species)



Rainbow trout (*Oncorhynchus mykiss*)



Variable Platyfish (*Xiphophorus variatus*)



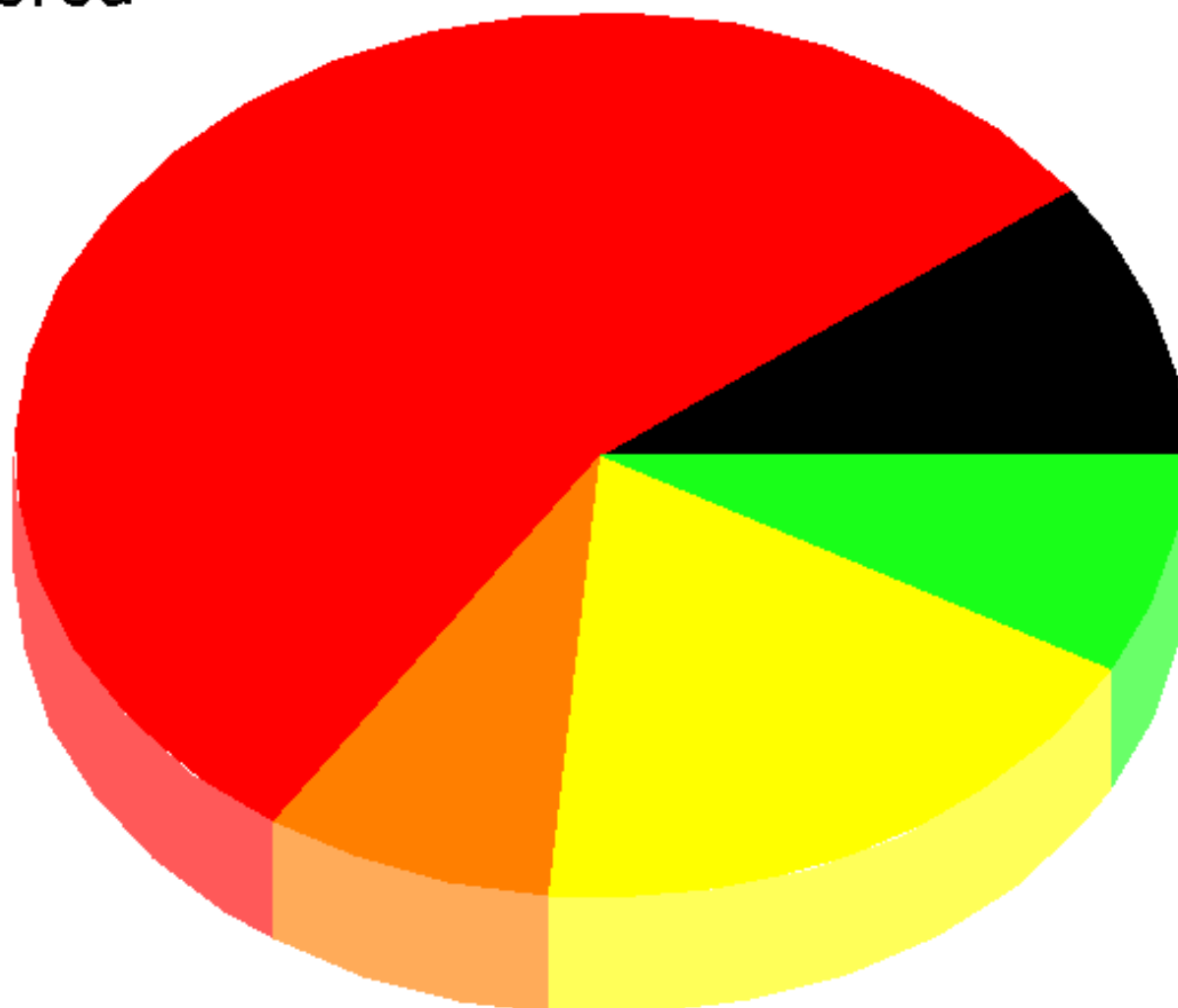
Common carp (*Cyprinus carpio*)



# Goodeids in Trouble in the Wild

Endangered

21



Extinct

4

Low Risk

3

Threatened

3

Vulnerable

7

# Decline of Freshwater Fishes and Fisheries in Selected Drainages of West-central Mexico

By John Lyons, Georgina González-Hernández, Eduardo Soto-Galera, and Manuel Guzmán-Arroyo

## ABSTRACT

The unique freshwater fishes and fisheries of west-central Mexico are sharply declining because of environmental degradation. In the Lerma River basin, half of the localities that once supported fish communities either no longer have water or are so polluted that fish cannot survive. Of 44 native fishes, 3 are now extinct, and 23 are greatly reduced in range or abundance. In Lake Chapala, total fisheries production has actually increased despite major declines in water quantity and quality, but the fisheries for several valuable native species have declined or collapsed, and exotics now constitute a substantial portion of the catch. In the Ayuquila River, several species have been locally extirpated, and major untreated industrial and municipal discharges, coupled with substantial water withdrawals for irrigation, preclude fish life during the dry season in 20 km of river that once supported an important subsistence fishery. Conservation priorities include protecting localities that still retain native fish assemblages, reducing water withdrawals and pollution discharges, and controlling fishing effort and harvest better. These efforts in west-central Mexico would benefit from increased collaboration among Mexican, U.S., and Canadian fisheries professionals.

West-central Mexico, defined here as the Pacific slope between the cities of Mazatlán and Acapulco (Fig. 1), contains a unique and fascinating collection of freshwater fishes. With approximately 100 native species, the fish fauna is not particularly diverse by tropical standards, but endemism is high, and 70% of the fishes are found nowhere else on earth (calculated from data in Table 14.2 in Miller and Smith 1986). Species from the neotropical families Characidae and Cichlidae overlap with members of the nearctic families Petromyzontidae, Cyprinidae, Catostomidae, and Ictaluridae. An unusually large number (almost 45) of fishes are viviparous, and studies of these livebearers, particularly in the endemic subfamily Goodeinae (family Goodeidae), have yielded important

insights into fish reproduction and evolution (e.g., Turner 1933; Fitzsimons 1972; Turner 1983). Among the egg-laying species, the endemic genus *Chirotoma* (family Atherinidae) has radiated into a diverse species flock with a variety of habitat and trophic specializations (Barbour 1973a; Barbour and Chernoff 1984). In the lakes of the region, *Chirotoma* species support important commercial and subsistence fisheries that have persisted for thousands of years (Guzmán-Arroyo 1990).

Unfortunately, the fishes and fisheries of west-central México are seriously declining. During this century, particularly the last 20 years, aquatic habitats have been degraded at an unprecedented rate, and fish populations have decreased dramatically (Guzmán-Arroyo 1990; Lyons et al. 1995; Soto-Galera et al., in press).

Several fishes are now extinct; others are on the brink of extinction; and many fisheries have collapsed. Quick and decisive action is needed to conserve the remaining fishes and fisheries.

In this paper, we review the published literature and summarize our unpublished data to document declines in fishes and fisheries that have occurred in selected areas of west-central México. We focus on the Lerma River basin, Lake Chapala, and the Ayuquila River watershed. Our goal is to inform U.S. and Canadian fisheries professionals of the crisis that confronts the fish fauna of west-central México and to encourage involvement in conservation efforts.

## Study Area

West-central México is a seasonally arid region with a great diversity of

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Dr. Omar Domínguez-Domínguez



Ivan Dibble  
(1937-2009)





## Morelia "AquaLab" and Fish Ark Program



# 2009: Goodeid Working Group Formed in Europe to Fill Void

The screenshot shows the homepage of the Goodeid Working Group (GWG) website. The browser address bar displays 'http://www.goodeidworkinggroup.com/'. The website features a navigation menu on the left with links for HOME, ABOUT US, ARCHIVE, FORUM, LINKS, GOODEIDS, and DONATE. A login section includes fields for Username and Password, a Log in button, and links for 'Create new account' and 'Request new password'. The main content area features a large image of a Goodeid fish with a glowing yellow tail. Below the image, the heading 'Goodeids' is followed by a paragraph: 'The Goodeid Working Group is a voluntary and international Working Group. It has been established in 2009, 1st May in Stoholm/Denmark as a reaction on the critical situation of a lot of Goodeid species and populations in the wild and the unnoticed extinction of captive strains... > more'. At the bottom left, there is a 'newsletter' sign-up area. The browser's status bar at the bottom right shows '100%' zoom.

**“to promote collaboration between like-minded hobbyists, universities, public aquaria, zoos, museums and conservation projects in order to maintain aquarium populations of Goodeids while assisting in preservation of remaining natural habitats”**

# 2012 – 3<sup>rd</sup> GWG Meeting – Vienna, Austria



**Michael Koeck**  
GWG Chair

# Goodeid Working Group Organization

**GWG Board (11 total: 5-SC/EGWG; 5-SC/NAGWG; Omar Domínguez-Domínguez)**

**Steering Committee  
(Chair plus 4 others)**

**GWG**

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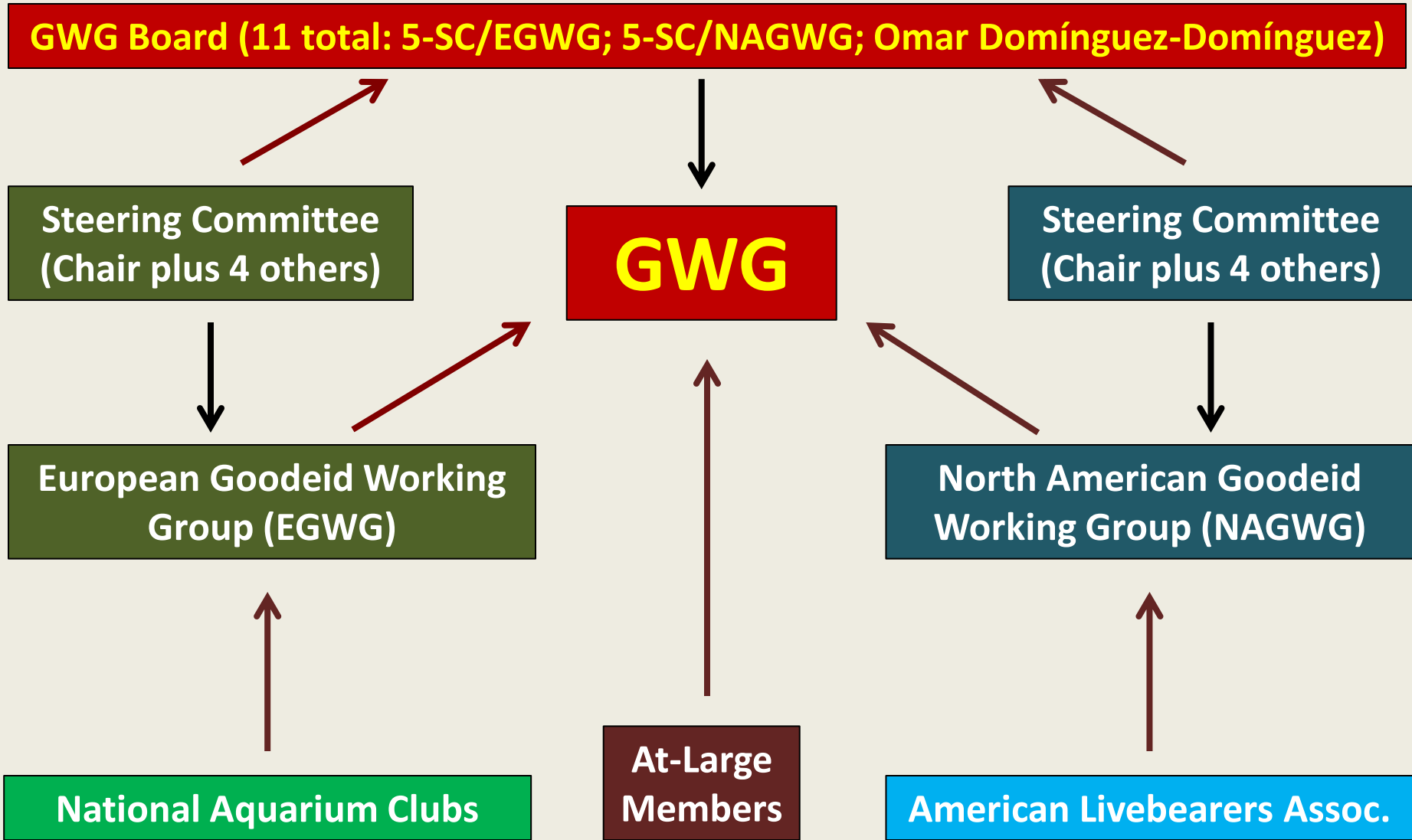
**European Goodeid Working  
Group (EGWG)**

**North American Goodeid  
Working Group (NAGWG)**

**National Aquarium Clubs**

**At-Large  
Members**

**American Livebearers Assoc.**



# NAGWG Is Official ALA Committee



- All official NAGWG members must be part of ALA

- NAGWG Chair appointed by/serves at pleasure of ALA BOD

- Within ALA rules, NAGWG can raise funds w/tax-exempt status

- NAGWG has “account” within ALA treasury

- NAGWG has access to organization, website, convention, etc.

# Goals of NAGWG

Promote the enjoyment, study, and conservation of Goodeids thru:

- **Developing a network for exchange of information and fish**
- **Fostering captive maintenance by hobbyists and zoos**
- **Supporting conservation in Mexico in captivity and the wild**
- **Educating the public on conservation matters**



*Zoogoneticus purepechus*

# Questions?



**Sunrise over Lago de Pátzcuaro, Michoacán**

# 2015 NAGWG Business Meeting Agenda

- Review of group organization and status – John L. ([jdlyons@wisc.edu](mailto:jdlyons@wisc.edu))
- Fund Raising Efforts:
  - Shirt Sales – Leslie D.
  - Wine Tasting – Rit F.
  - Mini-Auction – John L./Pat H.
  - Other?
- Goals for Coming Year:
  - Network & database of pedigreed Goodeids in captivity – John L.
  - Establishment of safe houses for imperiled Goodeids – John L.
  - Linkages with public aquaria and zoos – John L.
  - Support for Morelia (and Monterrey?) aqualabs – All
  - Other?
- Joint EGWG/NAGWG Meeting in Morelia, Nov. 3-6, 2014 – John L.
- Other business?