

The Goodeid Working Group: An International Captive Breeding and Maintenance Network to Conserve Goodeid Fishes



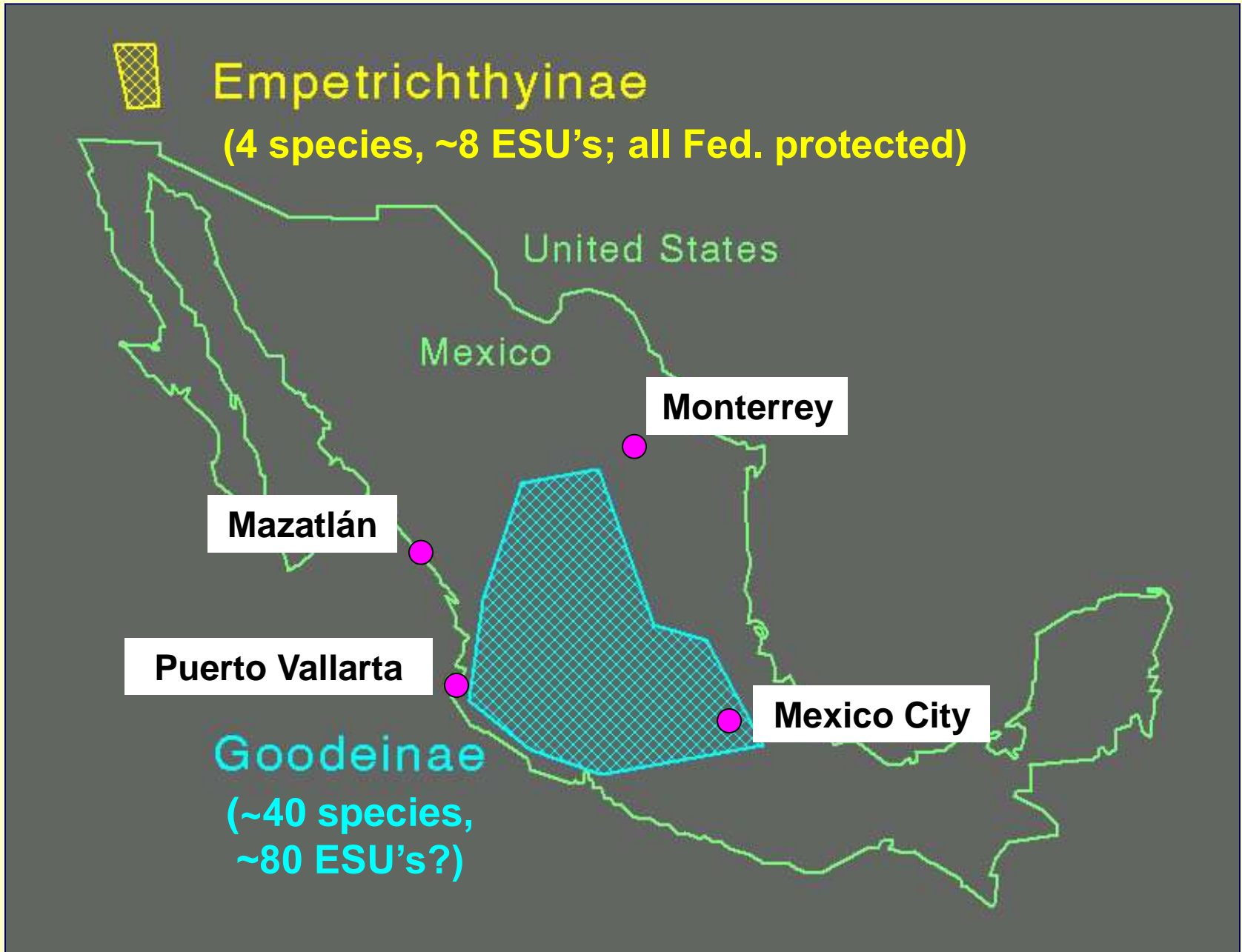
Allophorus robustus, Lago de Zacapu, Michoacán

John Lyons, University of Wisconsin Zoological Museum, Madison, USA

Omar Domínguez-Domínguez, Universidad Michoacana, Morelia, México

Michael Köck, Haus des Meeres Aquarium, Vienna, Austria

Focus on Goodeinae: Mexican Goodeids (Splitfins)



Highly Diverse and Ecologically Important Group



Allotoca dugesi



Allodontichthys zonistius



Manantlán Stream, Jalisco



Lake Pátzcuaro, Michoacán



Amado Nervo Springs, Durango



Xenotoca variata



Skiffia lermiae

Goodeid Country: Geologically Active and Mountainous with Many Movement Barriers



Result: Most species isolated with small ranges

Goodeid Country: Most Densely Populated and Developed Area of México; Seasonally Arid



Mexico City



Tamazula Sugar Mill, Jalisco



Estorax River, Querétaro



Cuzalapa River, Jalisco

Goodeid Threats: Water Scarcity

Lake Chapala

Normal Dry Season (1992)



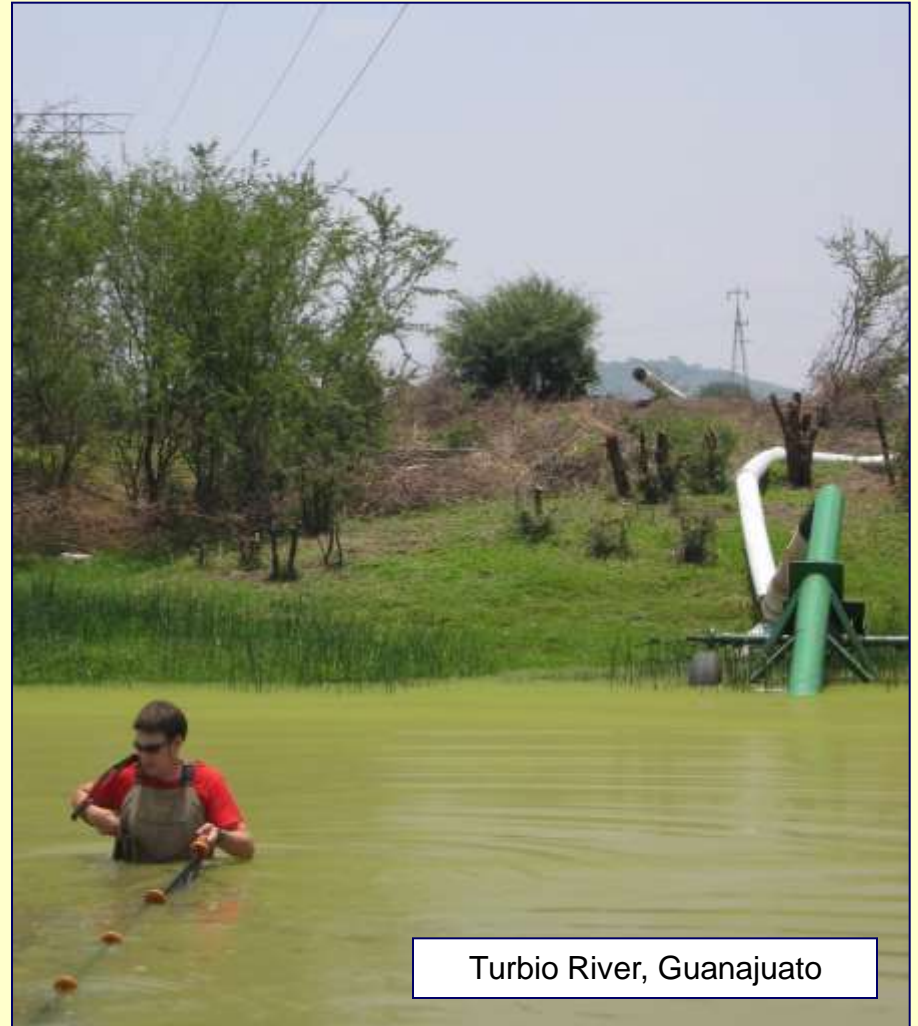
Lake Chapala
Drought (1991)



Goodeid Threats: Poor Water Quality



Lerma River, México



Turbio River, Guanajuato



Ayuquila River, Jalisco

Goodeid Threats: Invasive Non-Native Species



Tilapia (*Oreochromis and Tilapia species*)



**Largemouth Bass
(*Micropterus salmoides*)**



Common carp (*Cyprinus carpio*)



**Variable Platyfish
(*Xiphophorus variatus*)**

Goodeid status (IUCN Criteria) in the wild (2012):

Officially Designated: 2 extinct, 8 endangered, 4 threatened

Critically Endangered

16

Extinct

5 (3 species in captivity)

Low Risk

3

Endangered

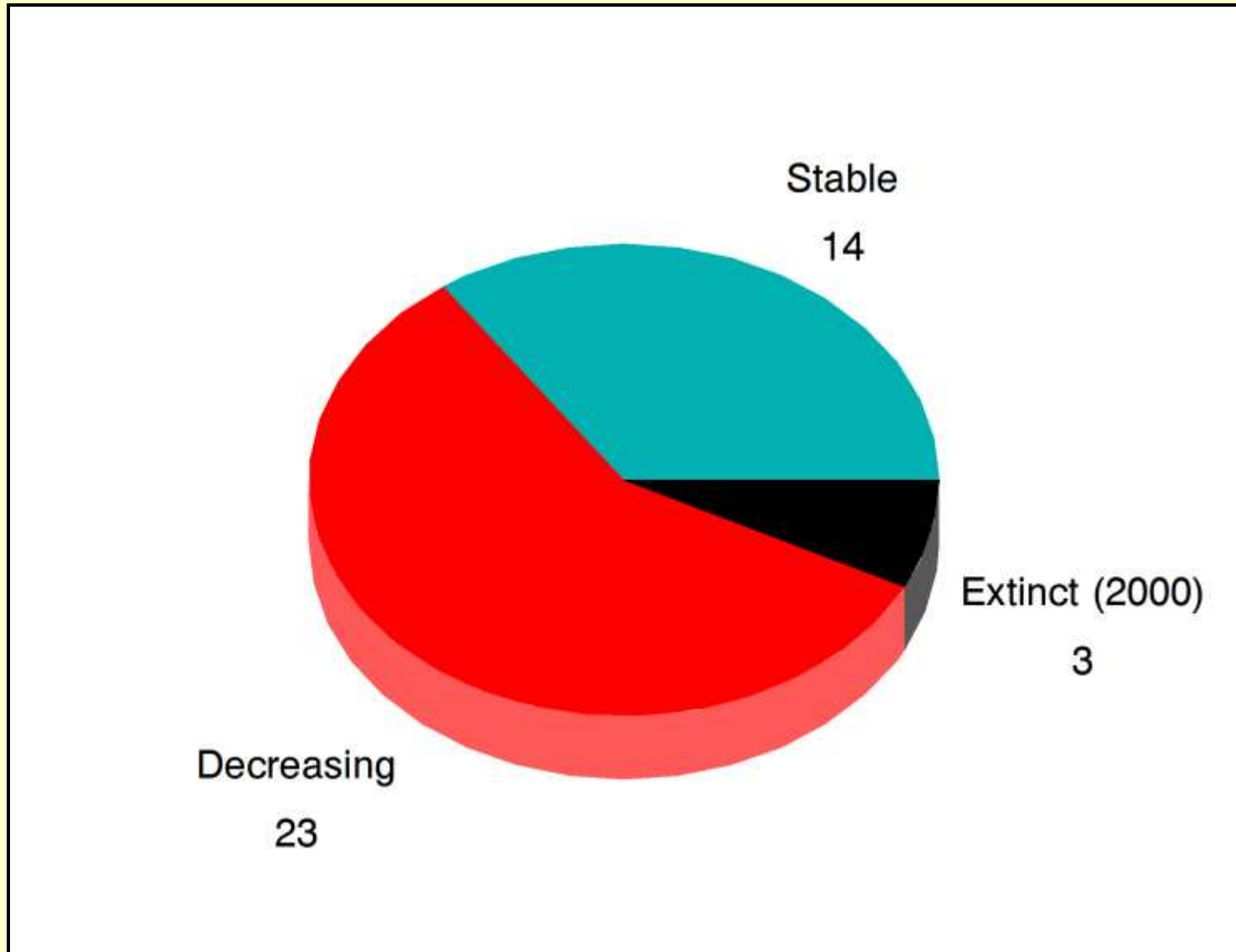
7

Vulnerable

9

Goodeids in serious trouble

Goodeid trends since 2000:



Most species in decline

Conserving Goodeids

1) Protect best remaining habitats



2) Restore key degraded habitats



3) Establish and maintain captive breeding colonies



Goodeid Captive Maintenance



“Fish Ark” Facility
Universidad
Michoacana de San
Nicolas Hidalgo,
Morelia, Michoacán
(smaller facility in
Monterrey, NL)

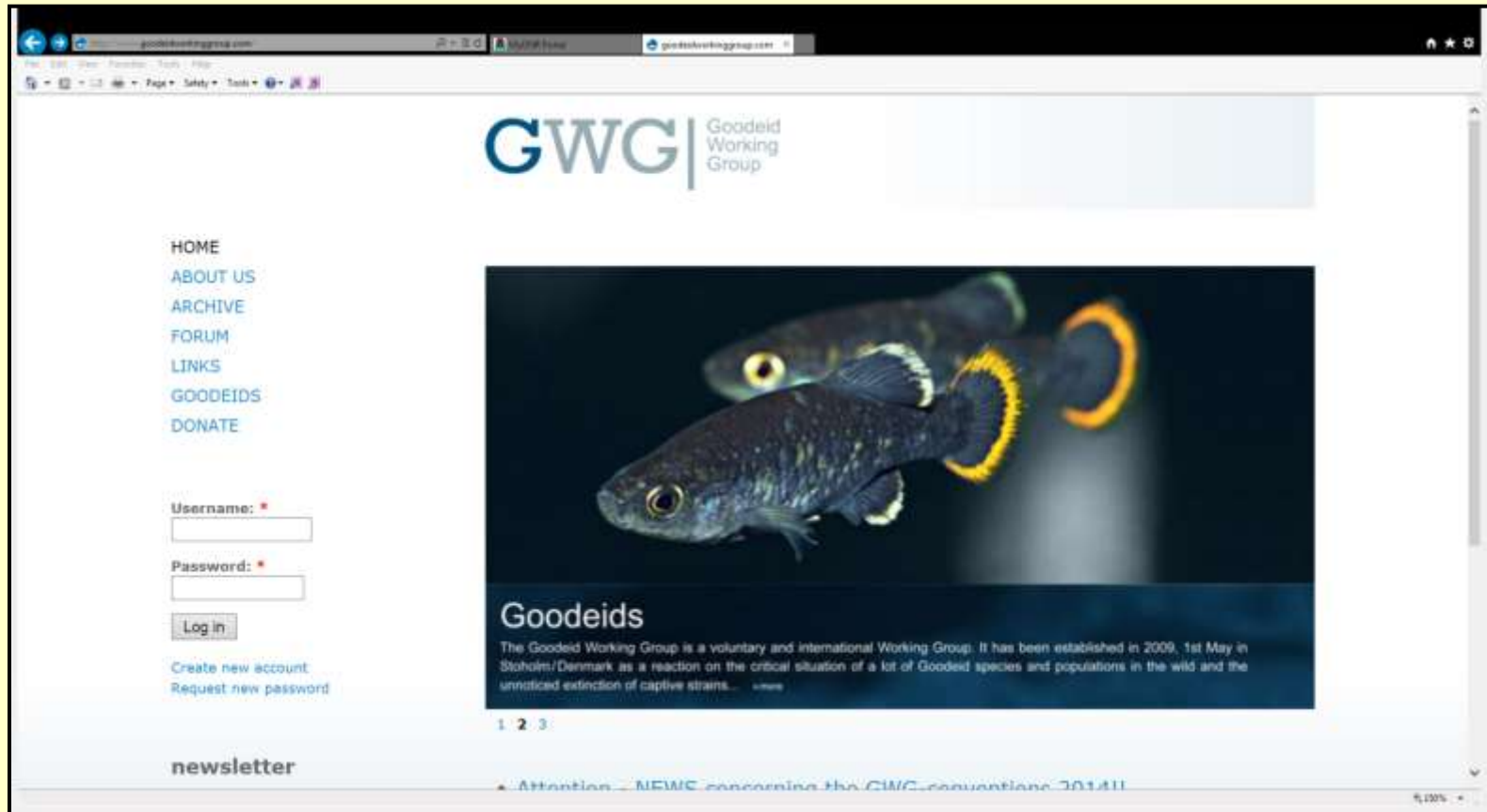


Goodeid Working
Group (GWG)
Supports Fish Ark &
their conservation
efforts; facilitates
captive rearing by
hobbyists;
coordinates w/public
zoos-aquariums



Goodeid Working Group:

<http://goodeidworkinggroup.com>

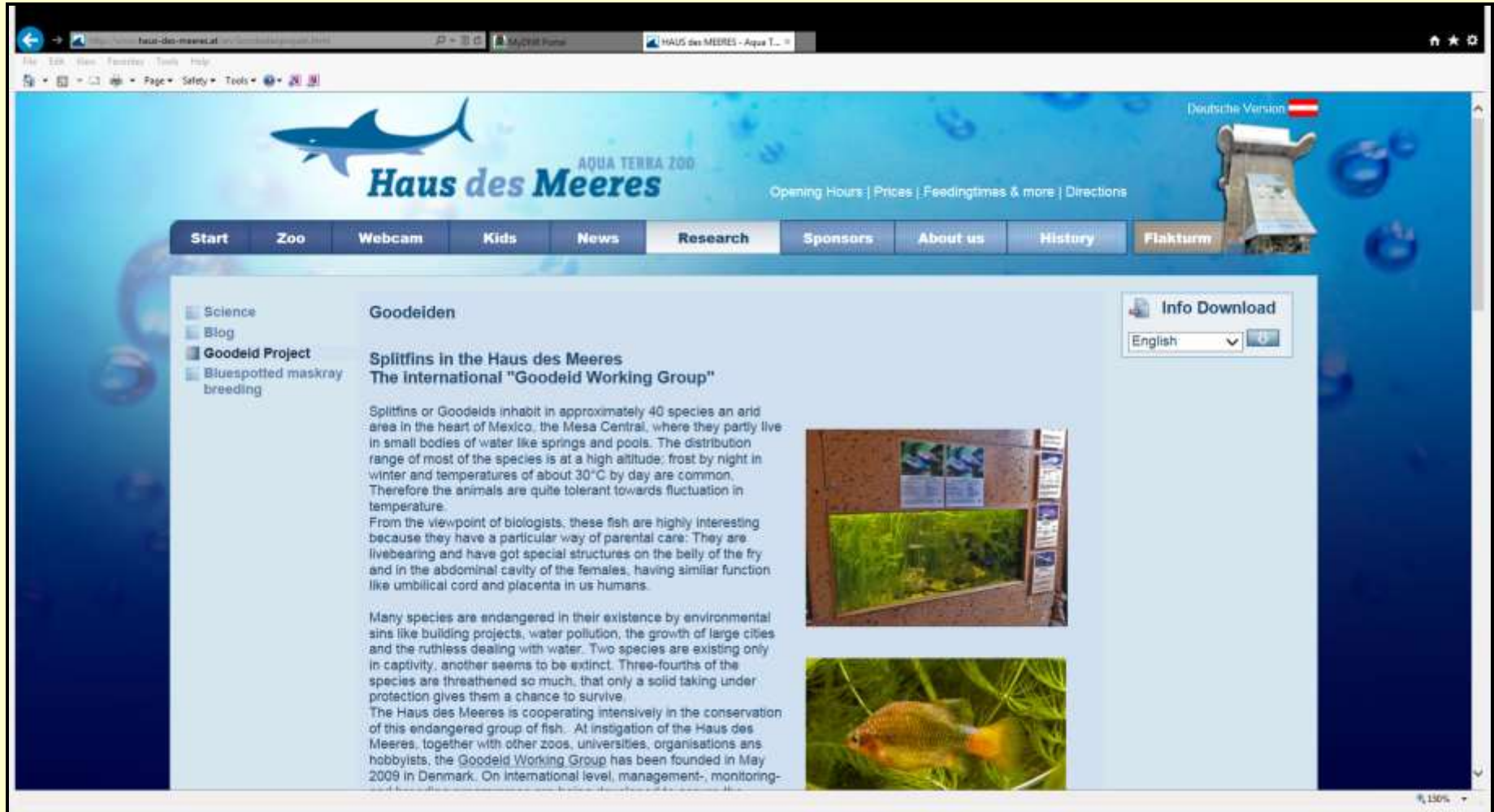


Founded 2009: European (EGWG) & North American (NAGWG) Chapters

Primarily Serious Hobbyists & Scientists (~125 in ~20 countries)

Collectively maintaining ~37 of 40 Mexican Goodeid species

EGWG Cooperates with 10 Public Zoos-Aquariums in Europe to maintain ~35 Goodeid species



The screenshot shows the website for Haus des Meeres, an aquarium in Vienna, Austria. The page is titled "Goodeiden" and features an article about "Spitffins in the Haus des Meeres" and "The international 'Goodeid Working Group'". The article discusses the conservation of these fish, which are found in small water bodies in Mexico. It mentions that many species are endangered due to environmental factors and that the Haus des Meeres is actively involved in their conservation through the Goodeid Working Group, founded in 2009. The website also includes a navigation menu, a search bar, and a language selector set to English.

Science
Blog
Goodeid Project
Bluespotted maskray breeding

Goodeiden

Spitffins in the Haus des Meeres The international "Goodeid Working Group"

Spitffins or Goodeids inhabit in approximately 40 species an arid area in the heart of Mexico, the Mesa Central, where they partly live in small bodies of water like springs and pools. The distribution range of most of the species is at a high altitude: frost by night in winter and temperatures of about 30°C by day are common. Therefore the animals are quite tolerant towards fluctuation in temperature.

From the viewpoint of biologists, these fish are highly interesting because they have a particular way of parental care: They are livebearing and have got special structures on the belly of the fry and in the abdominal cavity of the females, having similar function like umbilical cord and placenta in us humans.

Many species are endangered in their existence by environmental sins like building projects, water pollution, the growth of large cities and the ruthless dealing with water. Two species are existing only in captivity, another seems to be extinct. Three-fourths of the species are threatened so much, that only a solid taking under protection gives them a chance to survive.

The Haus des Meeres is cooperating intensively in the conservation of this endangered group of fish. At instigation of the Haus des Meeres, together with other zoos, universities, organisations and hobbyists, the Goodeid Working Group has been founded in May 2009 in Denmark. On international level, management-, monitoring-

Info Download
English

e.g., *Haus des Meeres* ("House of the Sea") Aquarium, Vienna, Austria

NAGWG partnering with North American zoos-aquariums via Association of Zoos & Aquariums Conservation Programs

The screenshot shows the AZA Animal Program Database interface. At the top, the AZA logo is visible along with navigation links: About AZA, Press Room, Jobs, A-Z Site Index, and Find a Zoo or Aquarium. A red navigation bar contains buttons for HOME, MEMBERSHIP, ACCREDITATION, ANIMAL CARE & MANAGEMENT, CONSERVATION, EDUCATION, CONFERENCES & MEETINGS, and PROFESSIONAL DEVELOPMENT. On the left, a sidebar menu lists options like Login, My Information, My AZA Network, My Transactions, Upcoming Events, Conservation, Animal Programs, Online Store, Request Info, and Join AZA. The main content area is titled "Animal Program | Freshwater Fishes TAG" and includes fields for Program Type (TAG), Taxon (Fish), Website (empty), Associated TAG (Freshwater Fishes TAG), and Program Leader (Mohan Peter). Below this is a table of species.

Common Name	Scientific Name
Argens	Haplochromis sp. argens
Damba, Pinstripe	Paretroplus menarambo
Degeni	Platytaeniodus degeni
Esculentus	Oreochromis esculentus
Goodeid, Opal	Allotoca maculata
Goodeid, White Trim	Zoogoneticus tequila
Ishmaeli	Labrochromis ishmaeli
Killifish, Sakaramyl	Pachypanchax sakaramyl

A blue box with the text "Priority Goodeids" and a red arrow pointing to the "Goodeid, Opal" and "Goodeid, White Trim" entries in the table.

NAGWG working to expand and re-energize the Goodeid portion of AZA's *Desert Fishes Conservation Program*

Benefits of GWG/Zoos-Aquariums collaboration:

From Zoos-Aquariums:

- Ability to maintain/breed greater numbers/diversity
- Population management by professional staff to
 - + maintain genetic diversity
 - + reduce domestication
- Opportunities for public education

Xenoophorus captivus
Critically Endangered
Rio Tierra Quemada, SLP



From GWG:

- Decades of goodeid-specific husbandry experience
- Availability of many species/ESU's for aquariums
- Contacts and access to Mexican biologists & fish

Summary and Conclusions

1) Wild Mexican goodeids are in serious trouble; most species are endangered and in serious decline

2) Primary threats are water scarcity, poor water quality, and invasive non-native species

3) Conservation requires protection & restoration of wild habitats and *captive rearing* (the role of GWG)

4) GWG working with hobbyists and zoos-aquariums to promote organized goodeid captive rearing

5) All fisheries professionals and conservationists are welcome and encouraged to join GWG!

Questions?



Sunrise over Lake Pátzcuaro, Michoacán