



Threatened species

Americans Cyprinodontiformes

1. What is a threatened species ?
2. *In situ* exemples.
3. What can we do ?



Ivan Dibble

28/08/1937

25/12/2009

What is a threatened species ?

<http://www.iucnredlist.org/>

- Population size and evolution, over 10 years.
- Population fragmentation.
- Species endemism.





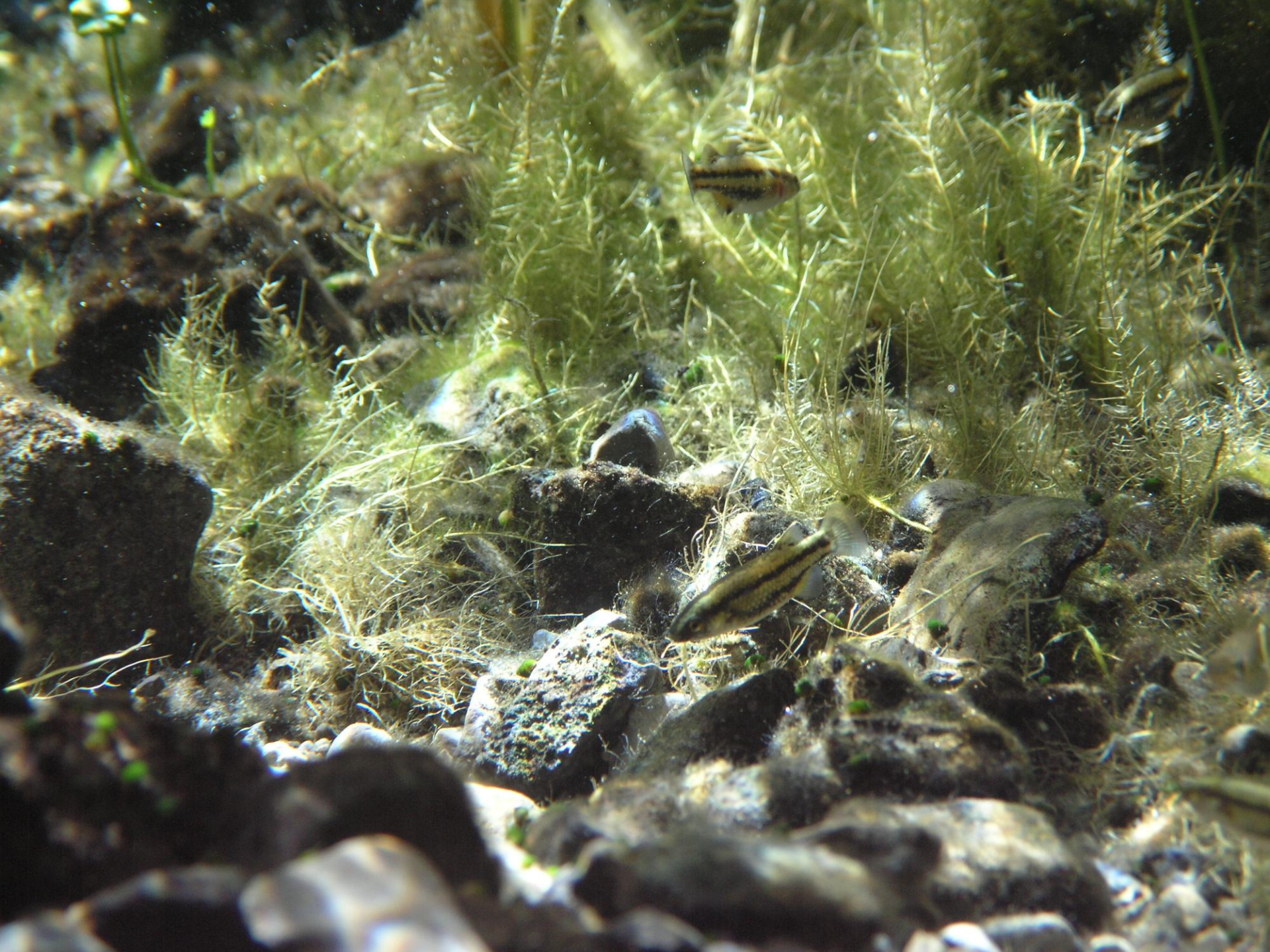
Nevada & Death valley =
Relictuals populations.



South USA / Mexico,
Land of Biodiversity

Crenichthys, the egglayer Goodeid





Populations under federal protection



Empetrichthys under the protection of the Shoshone natives





Devil's hole, death valley

Devils Hole Pupfish

Death Valley National Park
California

The Devils Hole pupfish is on the
U.S. Department of the Interior list
of endangered species.



The world's entire population of Devils Hole pupfish—*Cyprinodon nevadensis*—lives in this small, hidden pool. The pool is actually the mouth of a water-filled cave system. In summer, when nutrients are abundant, up to 100 pupfish eggs hatch, there may be as many as 100 pupfish here. In winter the population drops to 200 or fewer.

At Devils Hole, the pupfishes' struggle to survive continues. So far these pupfish have successfully adapted to the slow, natural changes of their habitat, but more rapidly occurring human impacts—like the pumping of groundwater—could quickly send this rare species into extinction.



The actual size of a Devils Hole pupfish (scale, 1/2 inch long).



Several species of pupfish, all closely related, live in the American Southwest and northern Mexico. The Devils Hole pupfish population is the only one of its kind in the world. It is the only one of its kind in the world.



Cyprinodon diabolis, rarest fish of the world ?

Sur USA / México,
Terra de Biodiversidad

Guadiana bassin =
6 millions years separation



Characodon, livebearer goodeid



Where is the livebearer ?

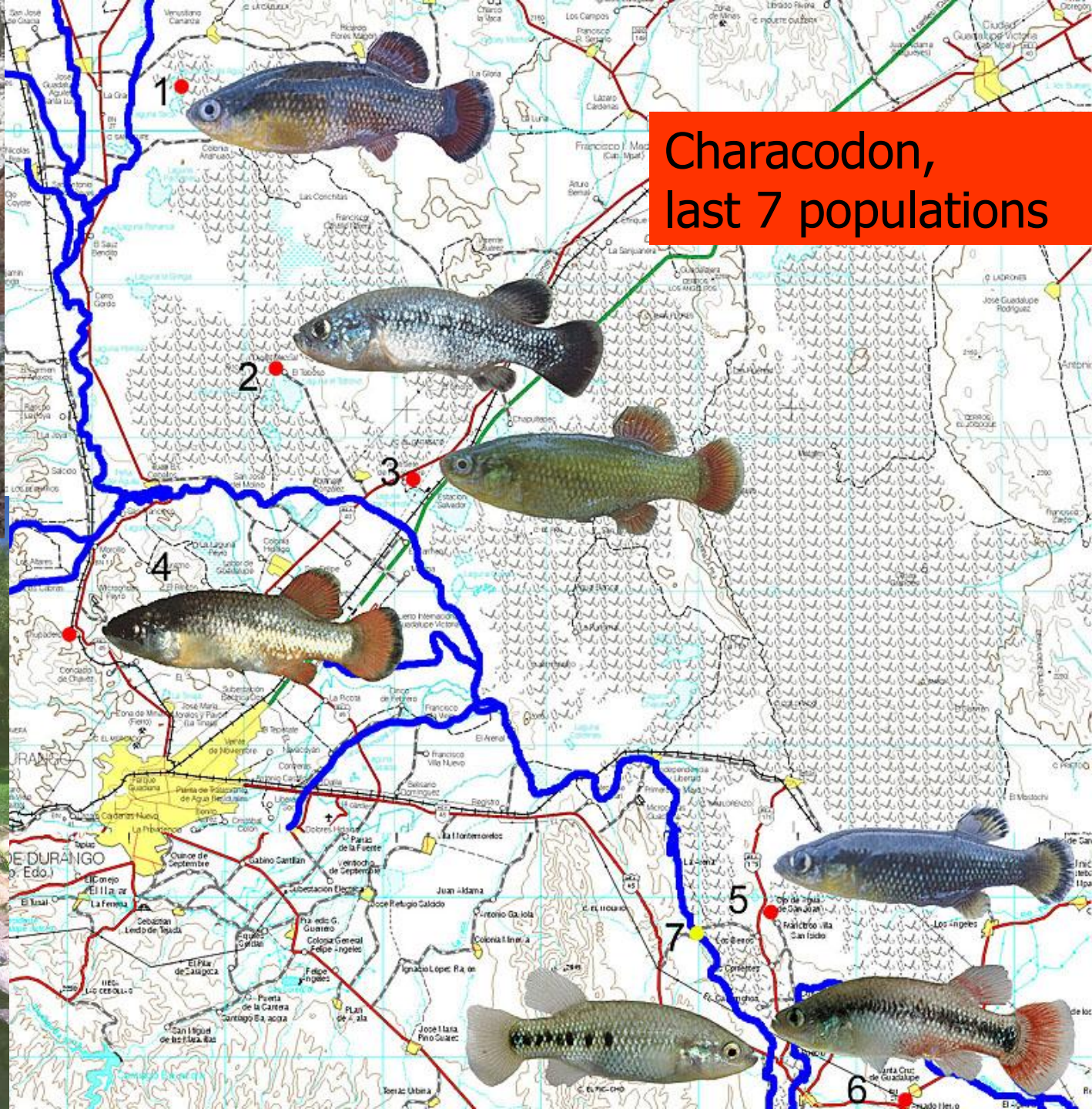
Where is the egglayer ?



6 MY of evolution

Crenichthys, egglayer goodeid





Sud USA – Mexique,
terre de biodiversité



Rio Teuchitlán =
Threatened endemism

Rio Teuchitlán, evolution « hot spot »



Ameca splendens



Skiffia francesae



Zoogoneticus tequila

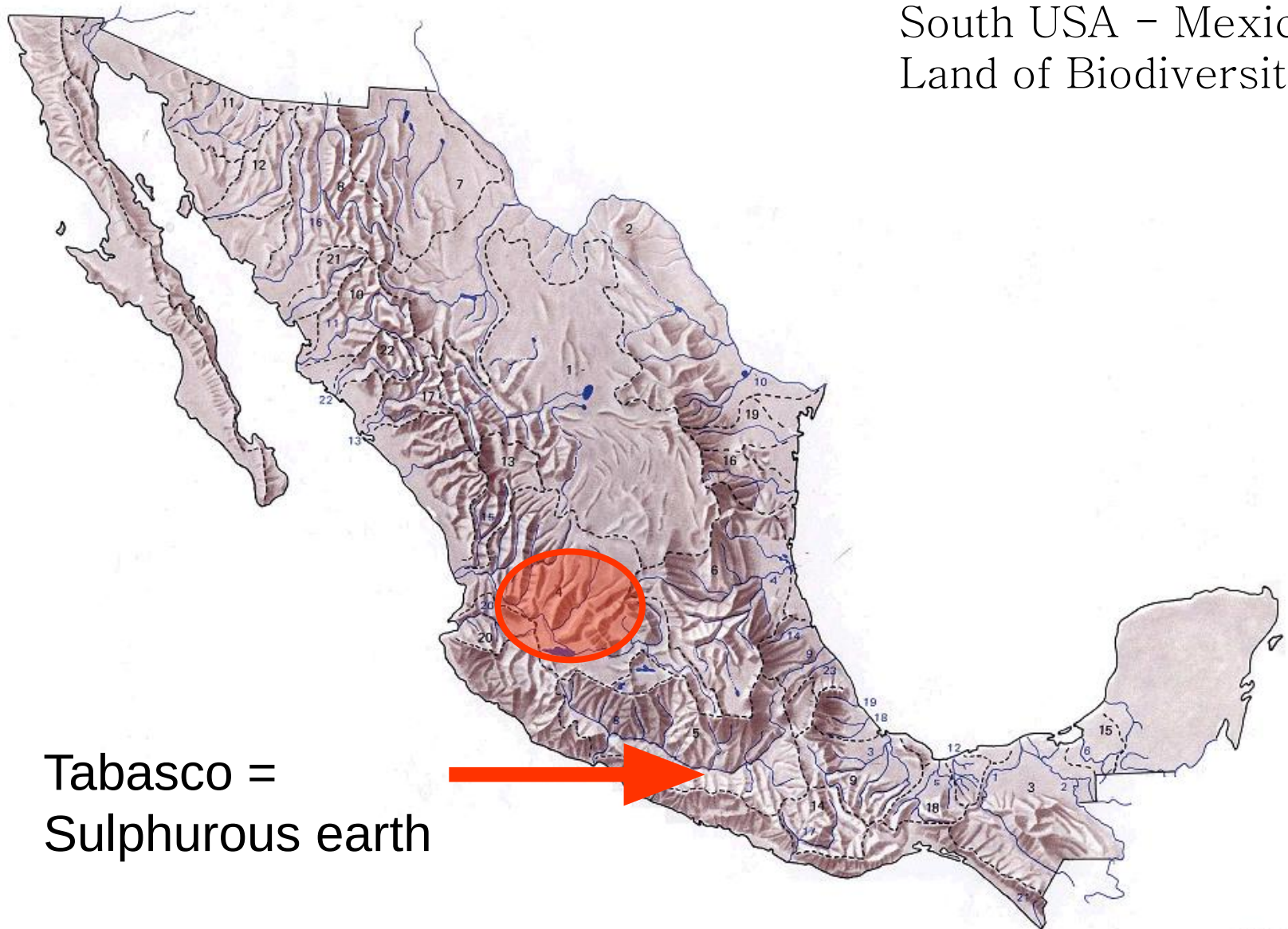


Photo and copyright by Ivan Dibble

Rio Teuchitlán, evolution « hot spot »



South USA – Mexico, Land of Biodiversité



Tabasco =
Sulphurous earth

Teapa, Baños del azufre



Poecilia sulfuraria



Gambusia eurystoma

Teapa, Cueva del azufre



Poecilia mexicana "Cavernicolis"

What can we do ?

- Breed populations back copies
- Support scientists activities
- Inform the WORLD !

If we do nothing ... who will?

GWG. Goodeids Working Group :
united hobbyists, professionals and
scientists

Thanks for them !



Thanks to photographers

- Shawn Goodchild
- Juan Miguel Artigas
- Ivan Dibble
- John Pint
- Jim Pizarowitch
- Michael Tobler

