Northern Mexican Gartersnake (Thamnophis eques megalops) in the Bill Williams River

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Background

DEPARTMENT OF THE INTERIOR
Fish and Wildlife Service
50 CFR Part 17

RIN 1018–AY23
Endangered and Threatened Wildlife and Plants; Threatened Status for the Northern Mexican Gartersnake and Narrow-Headed Gartersnake

AGENCY: Fish and Wildlife Service, Interior.
ACTION: Final rule.

BWR being considered critical habitat
Riparian Species

- Lowland riparian forests and woodlands
- Upland stream gallery forests
- Ponds, earthen cattle tanks, rivers, streams and ciénegas
- 600-6500ft
Historic Range and History on the Colorado River Drainage

- Fort Mohave 1904
- Yuma Specimens 1890
Updated Range Map Jan. 2012

- Extirpations from central and eastern portions of range
- Extirpated from the Gila and Salt Rivers
- Extirpated from the Colorado River drainage
Threats to Mexican Gartersnakes

- Invasive competitors and predators (e.g. bullfrogs, crayfish, non-native fishes)
- Habitat loss (e.g., riparian systems)
Lowland Leopard Frogs on the Bill Williams River

- Amphibian distribution surveys
- Funnel trapping BLM east of Planet Ranch
- Large numbers of amphibians
• 178 kilometers SW from nearest known population

• First recorded observation from the BWR

• one of the only populations with a native prey source
• All 2012 snakes in funnel traps
• complex habitat
• increased captures associated with amphibian metamorphosis
San Rafael Valley study site

- Between Patagonia and Huachuca mountains
- Headwaters of the Santa Cruz River
- First surveyed in 2008 (3 sessions of 8 nights: 51 captures)
- 1.7 mile stretch of river established as study area
- Regular monitoring established in 2012
San Rafael Valley study site

- 101 total traps
- Approximately every 25m of river
- Traps set for three nights
- Catch per unit effort (trap hours) around 0.002
- Timing?
The graph shows the estimated population over the years 2012 to 2014. The population decreases significantly from 2012 to 2013, and then increases again in 2014.

The table below provides additional information:

- **Capture (detection) probability**: 0.46 ± 0.11
- **Recapture probability**: 0.16 ± 0.09
- **Survivorship**: 0.60
Comparisons to BWR

- Bullfrogs
- No crayfish

- Dense vegetation
- Abundant spiny rayed fish
- Crayfish
- Native amphibians

San Rafael Valley
Bill Williams River
Other Areas of Interest in the BWR Drainage: Big Sandy

- Rarely surveyed area
- Native amphibians
- Native fish in places
Future on the Bill Williams River

• Site was dry for two years

• Snakes appeared at monsoon filled pools feeding on spadefoots
Voucher photos and locations
Identification

• Anterior lateral stripe on 3\textsuperscript{rd} and 4\textsuperscript{th} scale rows
Questions?

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To learn more about the Heritage Fund, please visit http://www.azgfd.gov/w_c/heritage_program.shtml