

Trip Report
Mexican Gartersnake Survey/Collection Effort
Las Cienegas National Conservation Area
September 6-8, 2007

On September 6-8, 2007, Jeff Servoss (USFWS Arizona ES), Bill Burger (AGFD Region VI), and Young Cage (Tucson Herpetological Society, or THS) conducted visual surveys and trapping for northern Mexican gartersnakes (*Thamnophis eques megalops*, or THEQ) in the Las Cienegas National Conservation Area (Las Cienegas), Empire Valley, Pima County, Arizona. The purpose of this effort was to collect three female and two male THEQ as a breeding colony at the Arizona-Sonora Desert Museum (ASDM) for captive propagation and release activities.

At approximately 0830 hrs, we met Jeff Simms, Fisheries Biologist for U.S. Bureau of Land Management-Tucson Field Office, at the intersection of Houghton Road and I-10. We discussed our planned strategy and his experience conducting fishery surveys, including relevant observations of the target species in the survey area. Mr. Simms provided us with a valuable map of Las Cienegas with detailed road data that we used to discuss access points and potential overnight camping opportunities.

When we arrived at Las Cienegas, we spent approximately two hours investigating access points to the drainage, determining the extent of flow within the drainage, assessing route quality, and investigating overnight camping sites. Ultimately, it was agreed that the terminus of road EC904 provided the closest access to the wetted reach of Cienega Creek; where we ultimately camped (31.79542, 110.58961). The area of our surveys is shown in the attached map (Figure 1.)

Visual Surveys

During the early afternoon of September 6th, we collectively spent 12 person-search hours hiking slowly upstream and downstream within the approximately 2-mile stretch of Cienega Creek drainage above its confluence with Empire Gulch searching for THEQ and assessing the habitat and prey base. It had rained significantly during the morning hours but began clearing by early afternoon and survey conditions were considered adequate.

Habitat downstream of camp was shaded with a dense canopy of cottonwood and willow trees which prevented much herbaceous or emergent vegetation growth. The stream channel was partially braided and flow was moderate to low. There was evidence of recent high flows, judging by the numerous debris jams and the amount of silt. There were disjunct patches of sunlit vegetation that the stream coursed through that looked promising for THEQ, but prey species were conspicuously low in number or absent throughout most of the approximately 1 mile from our camp downstream to the junction of Empire Gulch. The numerous debris dams may provide refuge for THEQ but none were found in this microhabitat. Figure 2 depicts typical habitat found downstream of camp.

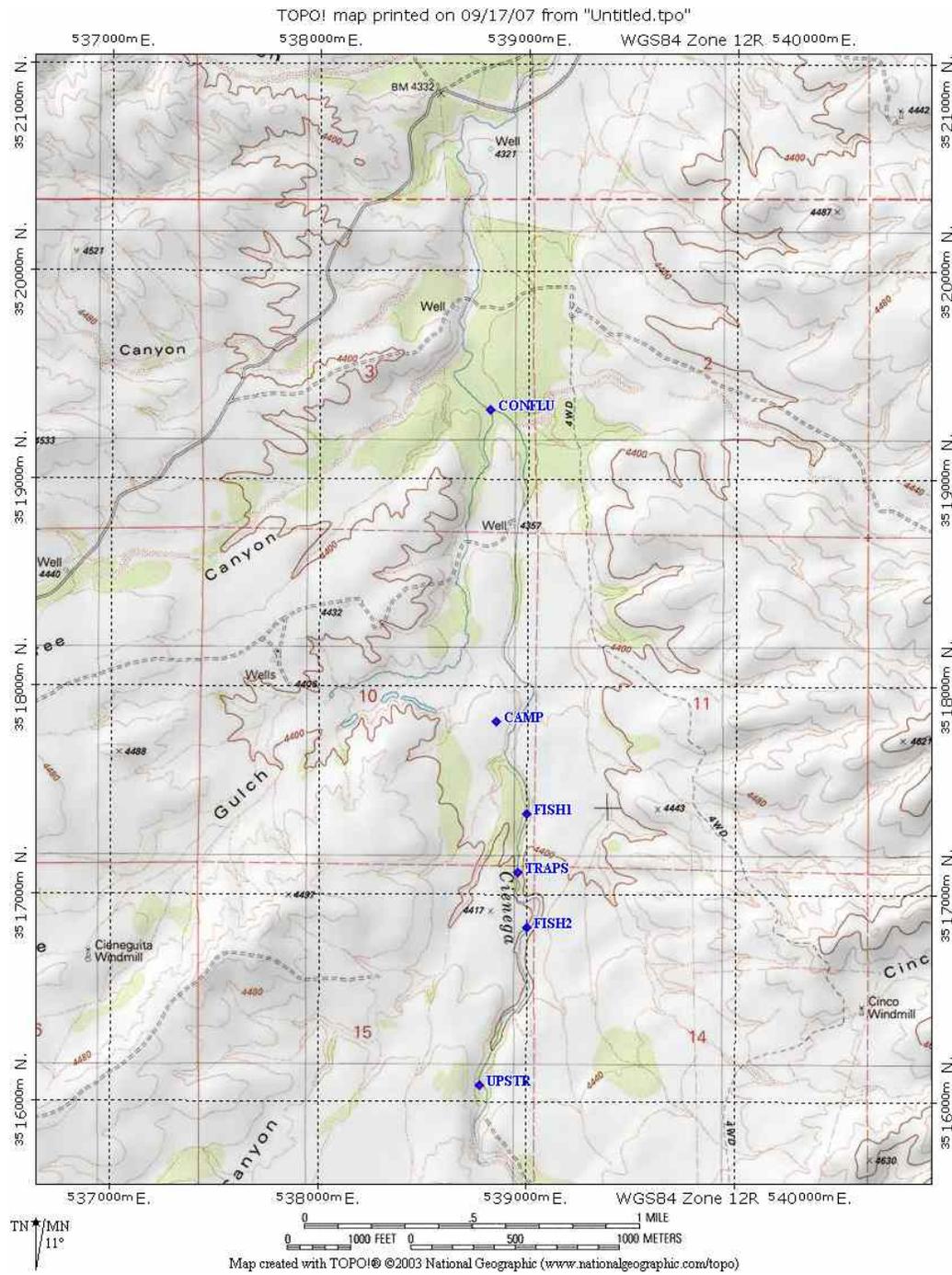


Figure 1. Map of Survey Area near confluence of Cienega Creek and Empire Gulch. Most surveys were conducted in the approximately 2 miles of Cienega Creek upstream from the Empire Gulch confluence. Chub and topminnow were fairly abundant between the FISH1 and FISH2 waypoints, and traps were set between FISH1 and TRAPS waypoints.



Figure 2. Cienega Creek riparian habitat downstream of camp.

At 1205 hours, Jeff Servoss observed a juvenile Marcy's checkered gartersnake (*Thamnophis marcianus*, or THMA) (see Figure 3) resting in the stream channel in habitat very similar to that depicted in Figure 2.



Figure 3. Juvenile THMA observed in at 31.79802 N, 110.58894 W in Cienega Creek, downstream of camp.

At 1247 hours, Young Cage observed what proved to be the only THEQ observed this trip (Figure 4). The specimen was observed in a resting coil on a log, on the eastern edge of the drainage, among tall sedges (Figure 5). Measurements and sex data were not collected because this was the only snake we collected; we in turn deferred those data collection requirements to the ASDM where we delivered the snake on September 8th, and where it is housed.



Figure 4. Juvenile THEQ, observed at 31.79985 N, 110.58859 W in Cienega Creek, downstream of camp (Photo courtesy of Y. D. Cage).



Figure 5. Habitat where juvenile THEQ was found.

Bill Burger surveyed the area upstream of camp to 31.77962N, 110.59044W. This habitat was markedly different from that downstream, as evidenced by more emergent vegetation, more pools, a narrower flood plain, and a visible prey base consisting of primarily Gila chub (*Gila intermedia*, Figure 5) and Gila topminnow (*Poeciliopsis occidentalis*, Figure 6), and also including nonnative bullfrogs (*Rana catesbeiana*). At least a dozen Sonoran Mud Turtles (*Kinosternon sonoriense*) were also noted. Surface water ended approximately 100 meters below the end of the upstream survey, and based on a prior check of the area slightly upstream of there near the terminus of Road 914A and information provided by Jeff Simms it seemed there was little likely habitat for THEQ above our survey area in Cienega Creek. Four western diamond-backed rattlesnakes (*Crotalus atrox*), in 2 pairs were noted along this upstream portion of Cienega Creek.



Figure 6. Gila chub found in pools in Cienega Creek upstream of camp (Photo courtesy of Y. D. Cage).



Figure 7. Gila topminnow found in pools in Cienega Creek upstream of camp (Photo courtesy of Y. D. Cage).

The upstream habitat appeared to possess more habitat characteristics associated with THEQ than the downstream habitat. Although the habitat appeared to be more suitable upstream of camp, no THEQ were observed. Typical habitat found upstream of camp is depicted in Figure 8.

On September 7, during the later morning and early afternoon hours, the three of us spent 15 person-search hours conducting visual searches downstream of camp to slightly downstream of the confluence of Empire Gulch. It rained a considerable amount earlier in the morning but conditions improved for visual searches by 0900 hours.

Jeff Servoss and Bill Burger also hiked up the Empire Gulch, from its confluence with Cienega Creek to approximately 2/3 mile upstream. The habitat consisted of several smaller pools in series with dense herbaceous vegetation. No fish or frogs were observed, though we did see several Sonoran Mud Turtles, and Virginia Rails and Sora were also common in stands of cattail and bulrush.

Later during the afternoon of September 7th, we drove to the headwaters of Empire Gulch where there was a visitors parking area and a foot path to hike a short reach of the stream. All three of us conducted visual searches for THEQ at this location where habitat appeared suitable. No fish were confirmed. We observed the small population of Chiricahua leopard frogs (*Rana chiricahuensis*) known to occur there as well as a few American bullfrogs (*Rana catesbeiana*) coexisting in the same pool. Approximately one hour was spent at this location.

Sonoran Mud Turtles (*Kinosternon sonoriense*) of different age classes were commonly observed in all surveyed habitat. No THEQ were observed during any of these searches performed on September 7th.

Trapping

Twenty-five Gee-Minnow Traps were set upstream of camp in five different pools within Cienega Creek (3-7 traps per pool between 31.79141N, 110.58807W and 31.7886N, 110.58852W). Traps were set between 17:00 and 18:15 on September 6th and retrieved between about 09:00 and 10:15 on the morning of September 8th for an approximate total of 1000 trap hours. The traps were checked morning and evening. Figure 7 depicts typical pool habitat where trapping was conducted.



Figure 8. One of five pools upstream of camp in Cienega Creek where trapping efforts were conducted for THEQ.

The traps adequately self baited with Gila topminnow and Gila chub. The traps appeared to possess more fish during the morning inspections and fewer during the evening inspections. This observation could be the result of improved visibility during daylight hours allowing fish to escape the trap. Other organisms observed in the traps included Sonoran mud turtles, belostomatids, and spiders.

Specific trapping data is presented below in Table 1.

Table 1. Animals in traps when pulled on September 8th, no other species were documented during prior checks of traps, although numbers of individuals fluctuated as additional animals were caught and some escaped.

Trap #	Species
1	1 mud turtle
2	10 topminnow (juvenile)
3	0
4	0
5	snail
6	1 chub, 1 topminnow
7	3 chub
8	1 chub
9	0
10	8 chub, 1 mud turtle (juvenile), 1 bellostomatid
11	3 topminnow
12	3 spiders
13	1 bellostomatid
14	4 topminnow
15	0
16	2 dragonfly larvae
17	1 bellostomatid
18	0
19	0
20	5 chub, 3 topminnow
21	2 bellostomatid
22	1 topminnow
23	0
24	0
25	1 mud turtle (juvenile)

On the morning of September 8th, we checked/collected the traps, recorded the associated data, disassembled camp, dropped off the THEQ specimen to Janice Johnson at the ASDM, and proceeded home.

Conclusions

This THEQ population at Las Cienegas was considered a location where THEQ is extant, or reliably found during the species assessment conducted as part of the USFWS 12-month Finding for

THEQ during fiscal year 2005. Rosen and Caldwell (2004) stated in their Executive Summary, “The Mexican Gartersnake was found in low to moderate abundance throughout the cienega system, representing the most significant remaining – though possibly declining – population of this species in the United States.” Rosen and Caldwell (2004) observed 29 THEQ in their two year study with 21 captured in traps after 491 trap days and the remainder observed in visual searches.

We set traps and conducted visual searches for THEQ in approximately the same core area used by Rosen and Caldwell (2004); i.e. the lower portion of Empire Gulch and Cienega Creek from approximately Empire Gulch to 2 miles upstream. We found no leopard frogs in Cienega Creek and relatively few American bullfrogs. We observed very few fish downstream of camp, but adequate densities upstream. In general, physical habitat characteristics appeared adequate with light to moderate grazing pressure where trespass cattle gained access. Structurally speaking, THEQ habitat appeared best in the portion of Empire Gulch just upstream of its confluence with Cienega Creek, and in the section of Cienega Creek about 1-2 miles upstream of camp the Empire confluence. Within the area we surveyed only the portion of Cienega Creek 1-2 miles above Empire seemed to have much of a prey base for the snakes, largely native fish but with low numbers of bullfrogs.

More time and effort is required to adequately determine the current THEQ population status at Las Cienegas, but initial consensus of our group was consistent with that of Rosen and Caldwell (2004) in that THEQ may be suffering from continued declines at this location, and should not be considered as a reliably-encountered species in this area.

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cc: Thamnophis Working Group (via E-mail)