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U. S. GEOLOGICAL SURVEY
BIOLOGICAL RESOURCES DISCIPLINE
WESTERN ECOLOGICAL RESEARCH CENTER



San Diego Field Station
5745 Kearny Villa Road, Suite M
San Diego, California 92123

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Steve Loe
Forest Biologist
U.S.D.A. Forest Service
San Bernardino National Forest
Forest Supervisor's Office
1824 South Commerce Center Circle
San Bernardino, CA 92408-3430

909-884-6634 office
909-383-5586 fax
sloe@fs.fed.us

Kathie Meyer
District Wildlife Biologist
U.S.D.A. Forest Service
San Bernardino National Forest
Front Country Ranger District
1209 Lytle Creek Road
Lytle Creek, CA 92358

909-382-2874 office
909-887-8197 fax
kpmeyer@fs.fed.us

Dear Steve and Kathie,

The following is a data summary of the USGS surveys for the southwestern arroyo toad (*Bufo californicus*) in the San Bernardino National Forest for 2005. This report summary is submitted in fulfillment of the 2005 agreement between USGS and the San Bernardino National Forest under contract # 02-IA-1105-12-00-018 (mod. 4) for southwestern arroyo toad surveys.

We have included tables summarizing site information and the species found at these sites along with topographical maps of each of the survey locations. Tables 1-4 summarize the locations of sites and species observed during our surveys. Figures 1-14 show specific sections of these creeks that were surveyed as well as select photographs of habitat and species encountered.

Respectfully,

Robert N. Fisher
Stacie A. Hathaway
Adam R. Backlin
Cynthia J. Hitchcock
Sara L. Compton
Liz Gallegos
Greta Turschak
Chris W. Brown
Denise R. Clark



Data Summary for the 2005 Arroyo Toad (*Bufo californicus*) Surveys Conducted in the San Bernardino National Forest

Data Summary

Prepared for:
San Bernardino National Forest

Data Summary for the 2005 Arroyo Toad (*Bufo californicus*) Surveys Conducted in the San Bernardino National Forest

By: Cynthia J. Hitchcock¹, Adam R. Backlin², Sara L. Compton², Robert N. Fisher² and Stacie A. Hathaway²

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Data Summary

Prepared for:

San Bernardino National Forest
Steve Loe
Kathie Meyer

¹San Diego Field Station – Thousand Oaks Office
USGS Western Ecological Research Center
401 Hillcrest Drive
Thousand Oaks, CA 91360

²San Diego Field Station – San Diego Office
USGS Western Ecological Research Center
4165 Spruance Road, Suite 200
San Diego, CA 92101

Sacramento, California
2005

U.S. DEPARTMENT OF THE INTERIOR
GALE A. NORTON, SECRETARY

U.S. GEOLOGICAL SURVEY
Patrick Leahy, Acting Director

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For additional information, contact:

Center Director
U.S. Geological Survey
Western Ecological Research Center
3020 State University Drive East
Modoc Hall, Room 3006
Sacramento, CA 95819

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Table 1. Summary of San Bernardino National Forest site reaches surveyed for arroyo toads during 2005.

| SITE | DATE | START LATITUDE ¹ | START LONGITUDE ¹ | END LATITUDE ¹ | END LONGITUDE ¹ |
|-----------------------------|-------------|--------------------------------|---------------------------------|------------------------------|-------------------------------|
| Cajon Wash | 27-Jun-2005 | 34.25207 | 117.46301 | 34.26591 | 117.46400 |
| | 27-Jul-2005 | 34.27734 | 117.45453 | 34.27940 | 117.45562 |
| | 27-Jul-2005 | 34.25207 | 117.46301 | 34.26122 | 117.46987 |
| | 11-Aug-2005 | 34.25895 | 117.46962 | 34.26591 | 117.46400 |
| Cucamonga Creek, Mainstem | 15-Jul-2005 | 34.16439 | 117.63656 | 34.17393 | 117.63044 |
| Cucamonga Creek, West Fork | 4-Aug-2005 | 34.17982 | 117.63415 | 34.18263 | 117.64644 |
| Deep Creek Devil's Hole | 14-Jul-2005 | 34.30623 | 117.13187 | 34.30148 | 117.12562 |
| | 1-Aug-2005 | 34.30148 | 117.12562 | 34.30623 | 117.13187 |
| | 8-Aug-2005 | 34.30139 | 117.12788 | 34.30623 | 117.13187 |
| Deep Creek Hot Springs | 13-Jul-2005 | 34.33907 | 117.17764 | 34.33872 | 117.16771 |
| | 1-Aug-2005 | 34.33907 | 117.17764 | 34.34138 | 117.17343 |
| Deep Creek Mojave Forks Dam | 29-Jun-2005 | 34.34361 | 117.22981 | 34.34073 | 117.24172 |
| | 2-Aug-2005 | 34.34136 | 117.23633 | 34.34361 | 117.22981 |
| Grass Valley Creek | 18-Jul-2005 | 34.31085 | 117.26298 | 34.29785 | 117.25444 |
| | 2-Aug-2005 | 34.31085 | 117.26298 | 34.29785 | 117.25444 |
| | 8-Aug-2005 | 34.31085 | 117.26298 | 34.29785 | 117.25444 |
| Kinley Creek | 25-Jul-2005 | 34.32009 | 117.19437 | 34.30989 | 117.20146 |
| Little Horsethief Canyon | 29-Jun-2005 | 34.31264 | 117.39913 | 34.31211 | 117.41379 |
| | 27-Jul-2005 | 34.31264 | 117.39913 | 34.31211 | 117.41379 |

¹ Coordinates recorded in WGS84 (decimal degrees).

Table 2. Summary of habitat suitability for arroyo toads at site reaches surveyed.

| SITE | HABITAT CRITERIA | | | HABITAT QUALITY ¹ | ARROYO TOADS OBSERVED | HABITAT COMMENTS |
|-----------------------------|------------------|----------------|------------------|------------------------------|-----------------------|---|
| | SANDY SUBSTRATE | SANDY TERRACES | CHANNEL BRAIDING | | | |
| Cajon Wash | X | X | | Good | N | Heavy flows have altered the habitat. Water no longer braids and flows more quickly than in prior years. Substrate contains more cobble than sand. The stream in northern Blue Cut is enclosed with heavy vegetation. |
| Cucamonga Creek, Mainstem | | X | X | Good | N | Substrate not sandy, but made up of larger cobble and boulders. |
| Cucamonga Creek, West Fork | | | | Poor | N | Plunge pool habitat. Rocky substrate. No sandy areas. |
| Deep Creek Devil's Hole | X | X | | Good | N | Big pools with mix of cobble and sandy substrate. |
| Deep Creek Hot Springs | X | X | | Good | Y | High flow with large pools and no braiding. Sandy shallow pool edges and many of patches of sandy terraces. |
| Deep Creek Mojave Forks Dam | X | X | X | High | Y | Previously dense vegetation and beaver dams have been cleared out by heavy scouring. |
| Grass Valley Creek | | X | | Marginal | N | Boulder and cobble substrate with thick vegetation. Some areas are channelized. Site had many sandy terraces but only one small sandy patch adjacent the water. |
| Kinley Creek | X | X | | Good | N | Narrow and incised with many boulders, but does have sandy patches. Very small pools of water. Most of the reach was dry. |
| Little Horsethief Canyon | X | X | X | High | Y | Sandy substrate with shallow sandy pooling areas. Few sandy terraces. |

¹ Total number of "X's" correlates with habitat quality as follows:

" " = poor

"X" = marginal

"XX" = good

"XXX" = high

Table 3. Summary of animals observed for each site surveyed in 2005.

| SITE | NATIVE AQUATIC / SEMI-AQUATIC SPECIES | | | | | | | NON-NATIVE AQUATIC / SEMI-AQUATIC SPECIES | | | | | |
|-----------------------------|--|--|--|-------------------------------------|--|----------------------------------|---|---|---|--|---|--|-------------------------------------|
| | southwestern arroyo toad (<i>Bufo californicus</i>) ¹ | California treefrog (<i>Pseudacris cadaverina</i>) | Pacific treefrog (<i>Pseudacris regilla</i>) | western toad (<i>Bufo boreas</i>) | two-striped garter snake (<i>Thamnophis hammondi</i>) ² | chub species (<i>Gila sp.</i>) | speckled dace (<i>Rhinichthys osculus</i>) ³ | bullfrog (<i>Rana catesbeiana</i>) | catfish species (<i>Ameiurus sp.</i>) | largemouth bass (<i>Micropterus salmoides</i>) | mosquito-fish (<i>Gambusia affinis</i>) | rainbow trout (<i>Oncorhynchus mykiss</i>) | beaver (<i>Castor canadensis</i>) |
| Cajon Wash | | X | X | X | | | X | | | | | | |
| Cucamonga Creek, Mainstem | | X | X | | | | | | | | | | |
| Cucamonga Creek, West Fork | | X | X | | | | | | | | | | |
| Deep Creek Devil's Hole | | X | | | | X | | | | | | X | |
| Deep Creek Hot Springs | X | X | | | | X | | | | | | | X |
| Deep Creek Mojave Forks Dam | X | | X | X | | X | | X | X | X | X | X | |
| Grass Valley Creek | | X | | | | X | | | | | | | |
| Kinley Creek | | X | | X | X | | | | | | | | |
| Little Horsethief Canyon | X | X | X | X | | | | | | | | | |

¹ Federally endangered.

² CDFG: CSC; BLM: Sensitive; FS: Sensitive.

³ CDFG: CSC Sensitive.

Table 4. Summary of 2005 arroyo toad captures by date and age class for each site surveyed.

| SITE | DATE | ANIMAL'S LATITUDE ¹ | ANIMAL'S LONGITUDE ¹ | AGE CLASS | TOTAL COUNT ² |
|-----------------------------|-------------|-----------------------------------|------------------------------------|-----------|-----------------------------|
| Cajon Wash | 27-Jun-2005 | — | — | — | — |
| | 27-Jul-2005 | — | — | — | — |
| | 11-Aug-2005 | — | — | — | — |
| Cucamonga Creek, Mainstem | 15-Jul-2005 | — | — | — | — |
| Cucamonga Creek, West Fork | 4-Aug-2005 | — | — | — | — |
| Deep Creek Devil's Hole | 14-Jul-2005 | — | — | — | — |
| | 1-Aug-2005 | — | — | — | — |
| Deep Creek Hot Springs | 13-Jul-2005 | 34.34162 | 117.17707 | Adult | 1 |
| | | 34.34206 | 117.17426 | Metamorph | 1 |
| | | 34.34206 | 117.17426 | Metamorph | 1 |
| | | — | — | Metamorph | 56 |
| | | 34.33908 | 117.17735 | Tadpole | ≥1 |
| | | 34.34166 | 117.17753 | Tadpole | ≥1 |
| | | 34.34176 | 117.17387 | Tadpole | ≥1 |
| | | 34.34176 | 117.17385 | Tadpole | ≥1 |
| | | 34.34148 | 117.17242 | Tadpole | 100 |
| | | 34.34126 | 117.17036 | Tadpole | ≥1 |
| | | 34.33963 | 117.16949 | Tadpole | ≥1 |
| | 1-Aug-2005 | 34.33923 | 117.17730 | Metamorph | 1 |
| | | — | — | Metamorph | 9 |
| Deep Creek Mojave Forks Dam | 29-Jun-2005 | 34.34142 | 117.23582 | Tadpole | 1 |
| | | 34.34142 | 117.23575 | Tadpole | 3 |
| | | 34.34163 | 117.23533 | Tadpole | 1 |
| | | 34.34237 | 117.23348 | Tadpole | 1 |
| | | 34.34300 | 117.23162 | Tadpole | 1 |
| | | — | — | Tadpole | 248 |
| | 2-Aug-2005 | 34.34167 | 117.23525 | Metamorph | 3 |
| | | 34.34302 | 117.23132 | Metamorph | 22 |
| | | 34.34167 | 117.23525 | Tadpole | 5 |
| | | 34.34250 | 117.23247 | Tadpole | 7 |
| | | 34.34302 | 117.23128 | Tadpole | 26 |
| | | 34.34272 | 117.23122 | Tadpole | 3 |
| Grass Valley Creek | 18-Jul-2005 | — | — | — | — |
| | 2-Aug-2005 | — | — | — | — |
| | 8-Aug-2005 | — | — | — | — |
| Kinley Creek | 25-Jul-2005 | — | — | — | — |
| Little Horsethief Canyon | 29-Jun-2005 | 34.31337 | 117.40122 | Adult | 1 |
| | | 34.31445 | 117.40252 | Adult | 1 |
| | | 34.31352 | 117.40382 | Adult | 1 |
| | | 34.31440 | 117.40323 | Adult | 1 |
| | | 34.31278 | 117.39937 | Adult | 1 |
| | | — | — | Metamorph | 10 |
| | 1-Aug-2005 | — | — | Juvenile | 4 |
| | | — | — | Metamorph | 12 |
| | | — | — | Tadpole | 404 |

¹ Coordinates recorded in WGS84 (decimal degrees).² Where "≥" appears, exact count was not recorded.

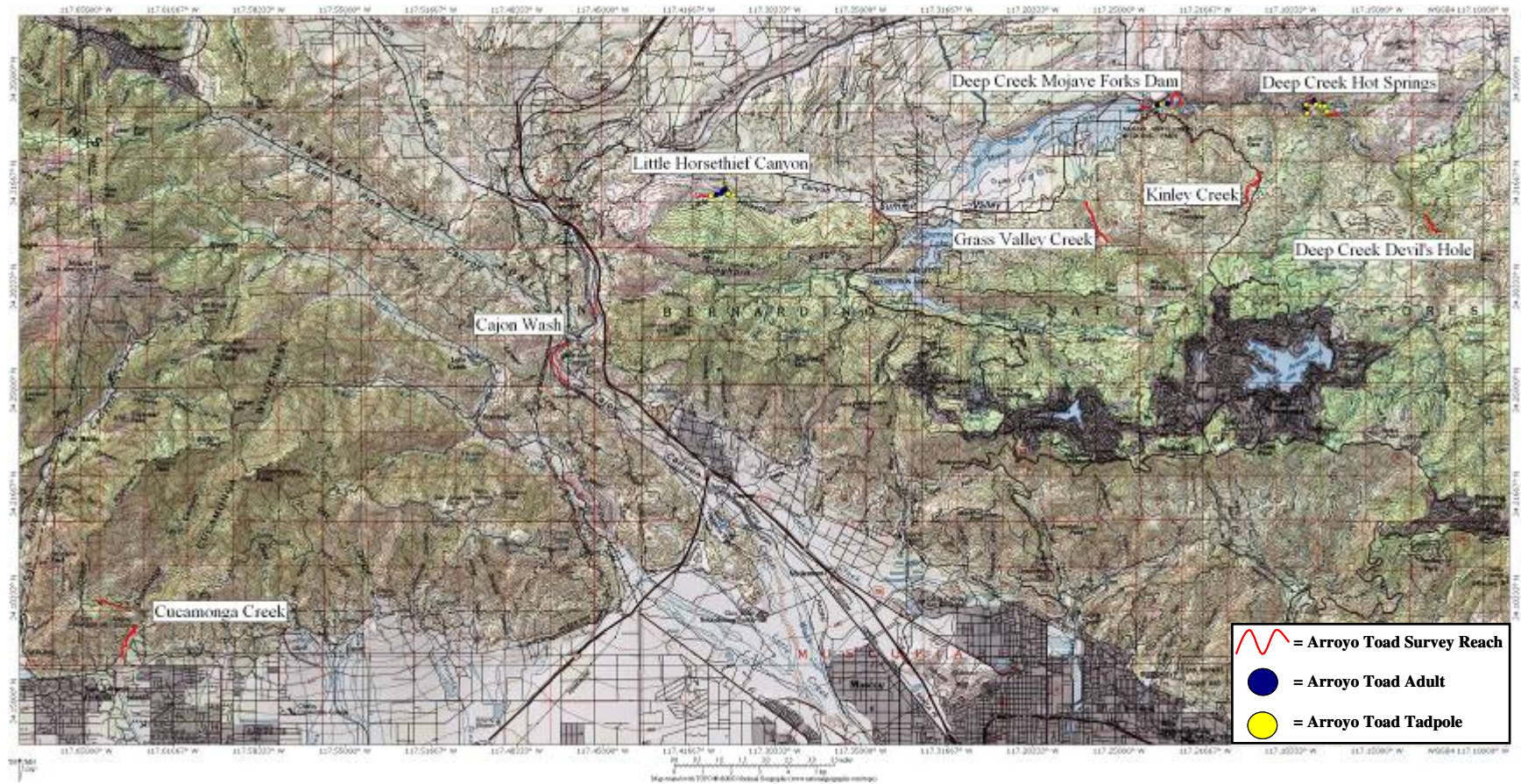


Figure 1. Overview of San Bernardino National Forest 2005 arroyo toad survey reaches.

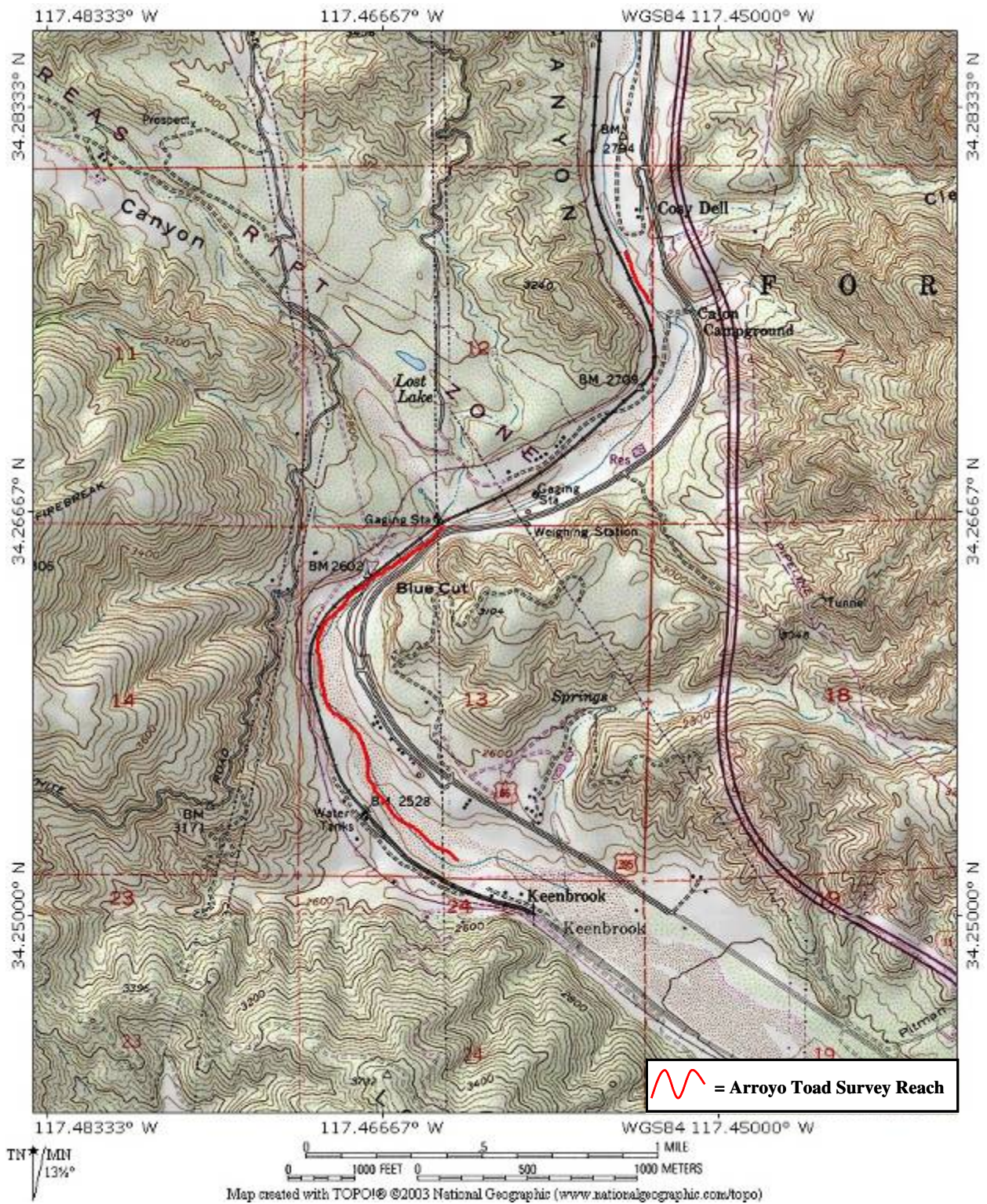


Figure 2. 2005 arroyo toad survey reaches at Cajon Wash. No arroyo toads were detected.

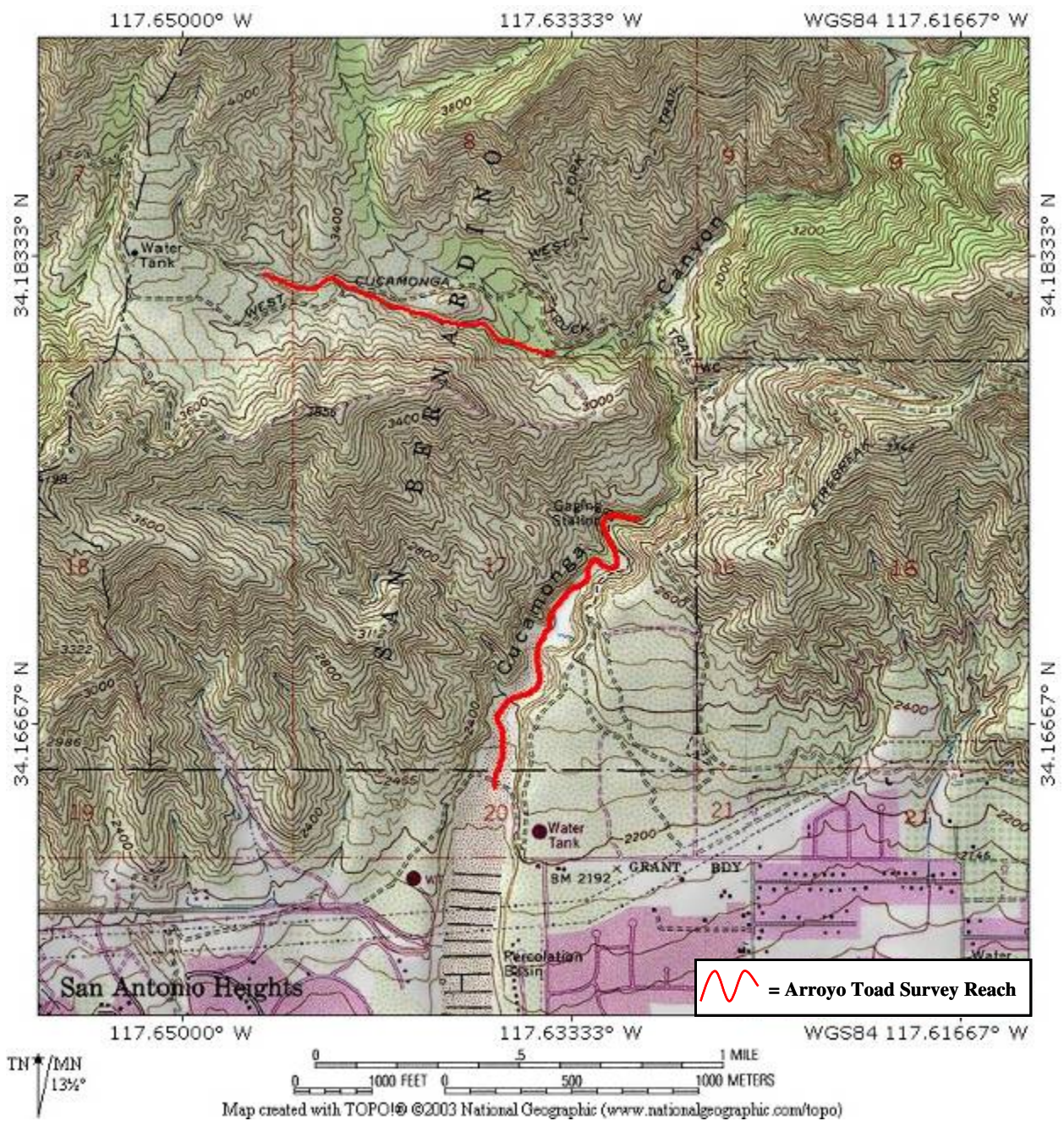


Figure 3. 2005 arroyo toad survey reaches at Cucamonga Creek. No arroyo toads were detected.

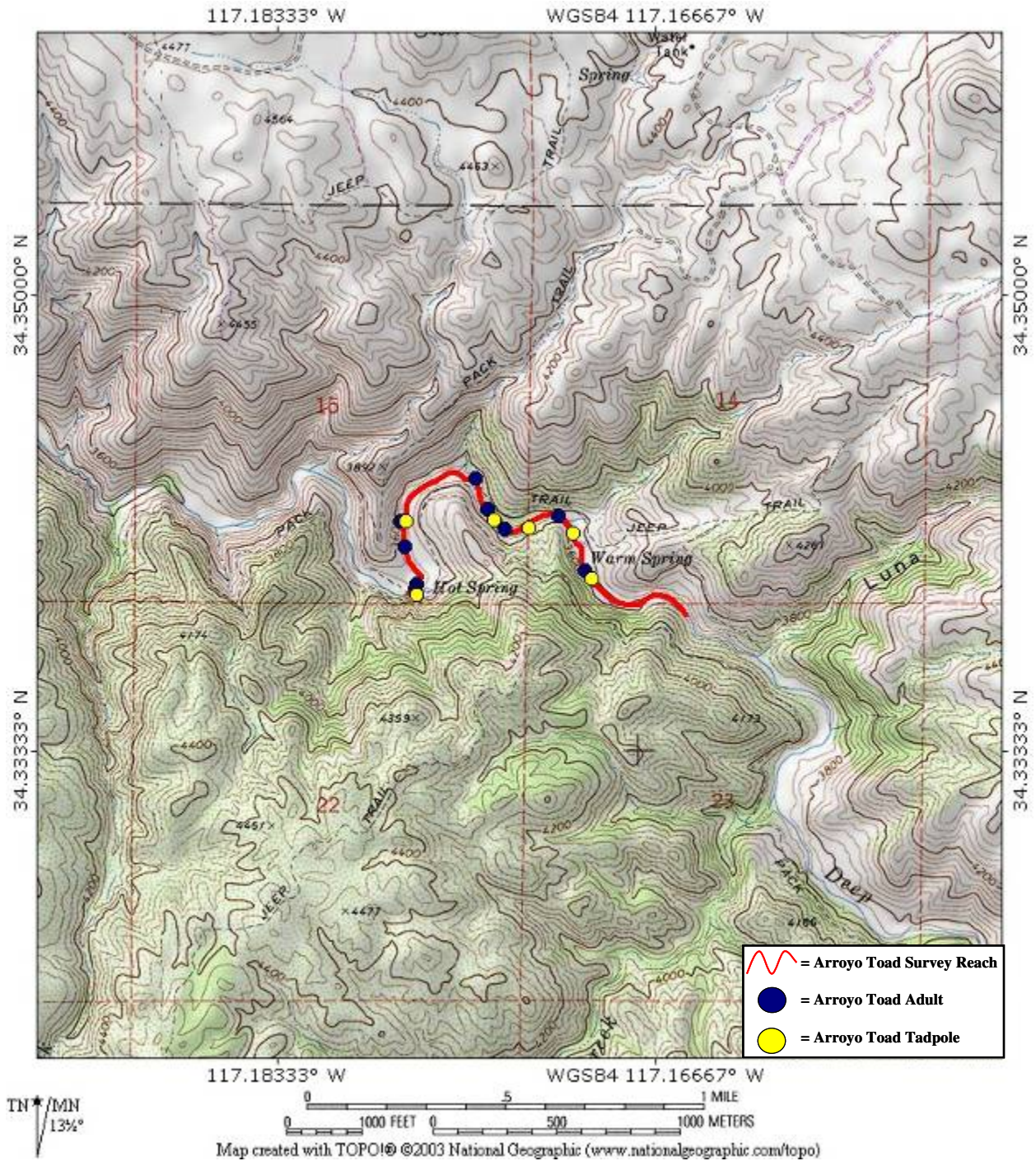


Figure 5. 2005 arroyo toad survey reach at Deep Creek Hot Springs.

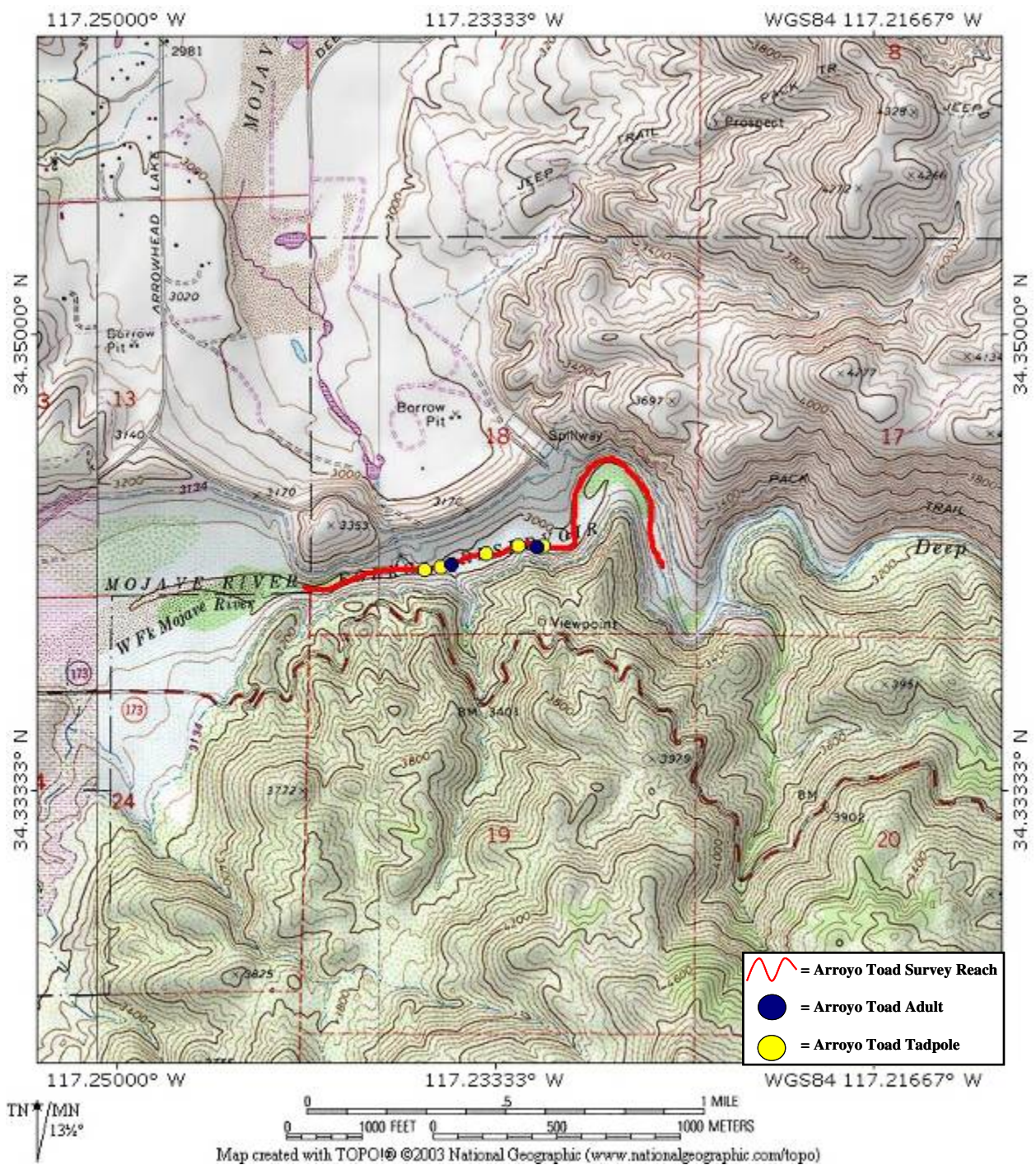


Figure 6. 2005 arroyo toad survey reach at Deep Creek Mojave Forks Dam.

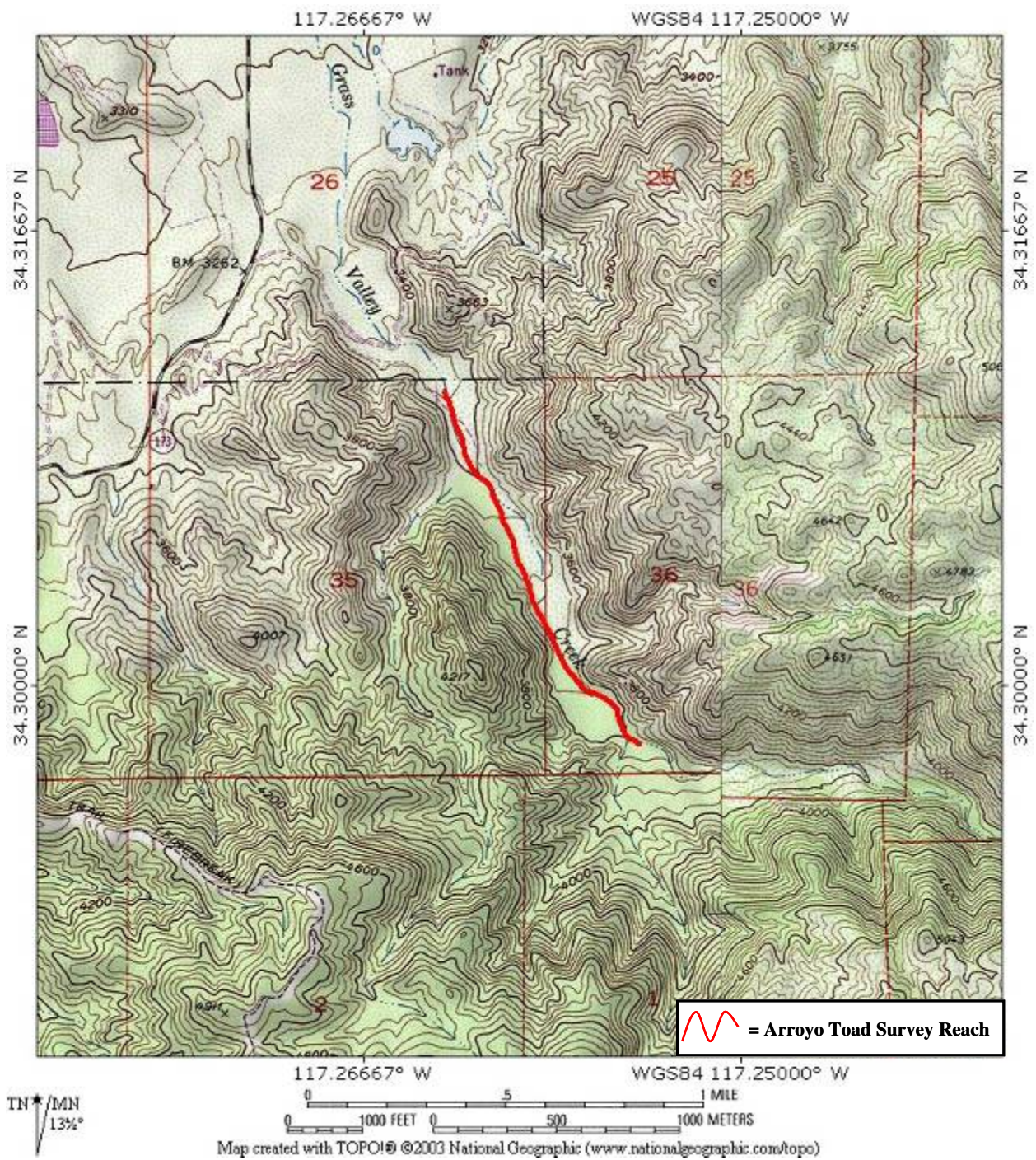


Figure 7. 2005 arroyo toad survey reach at Grass Valley Creek. No arroyo toads were detected.

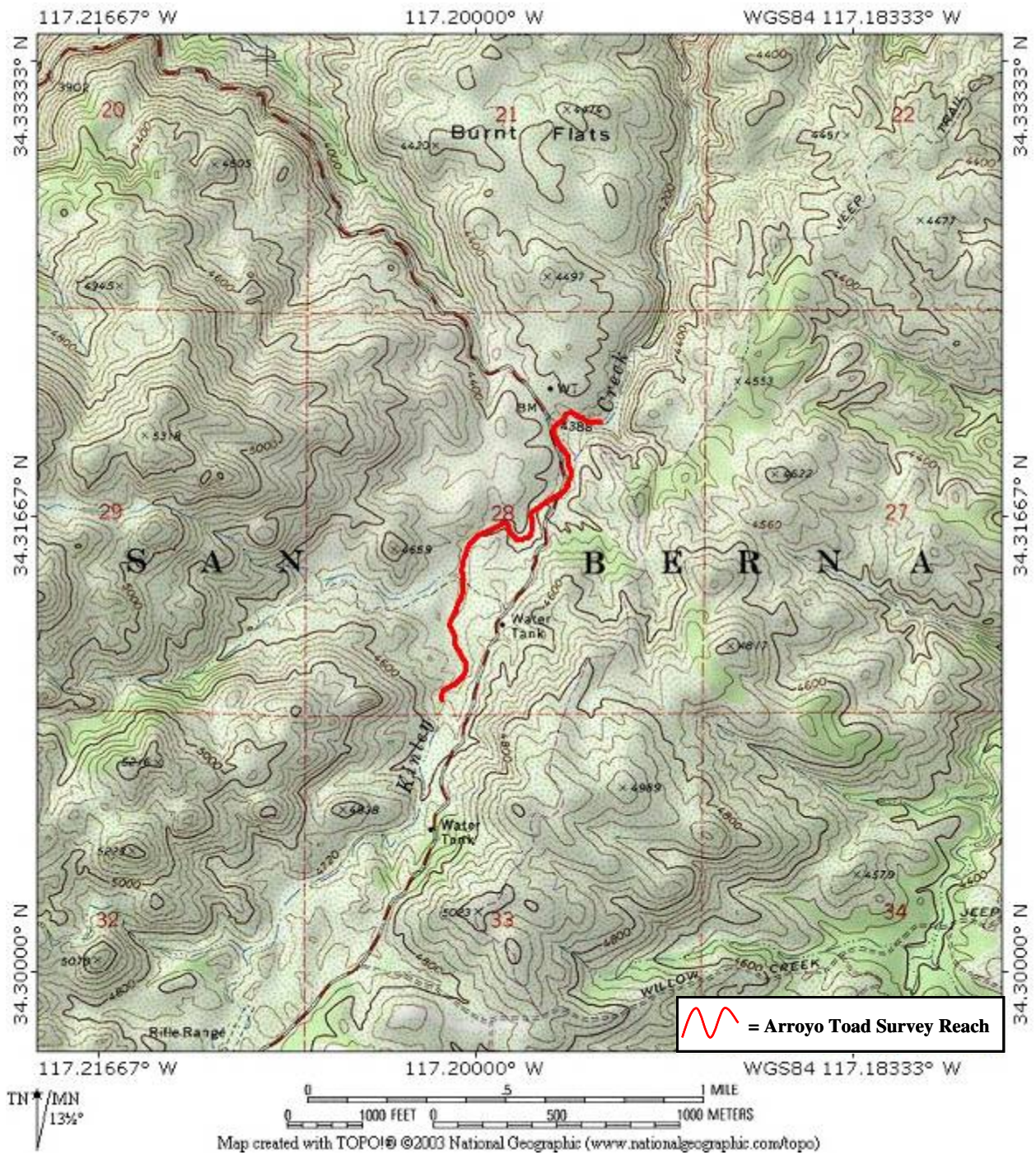


Figure 8. 2005 arroyo toad survey reach at Kinley Creek. No arroyo toads were detected.

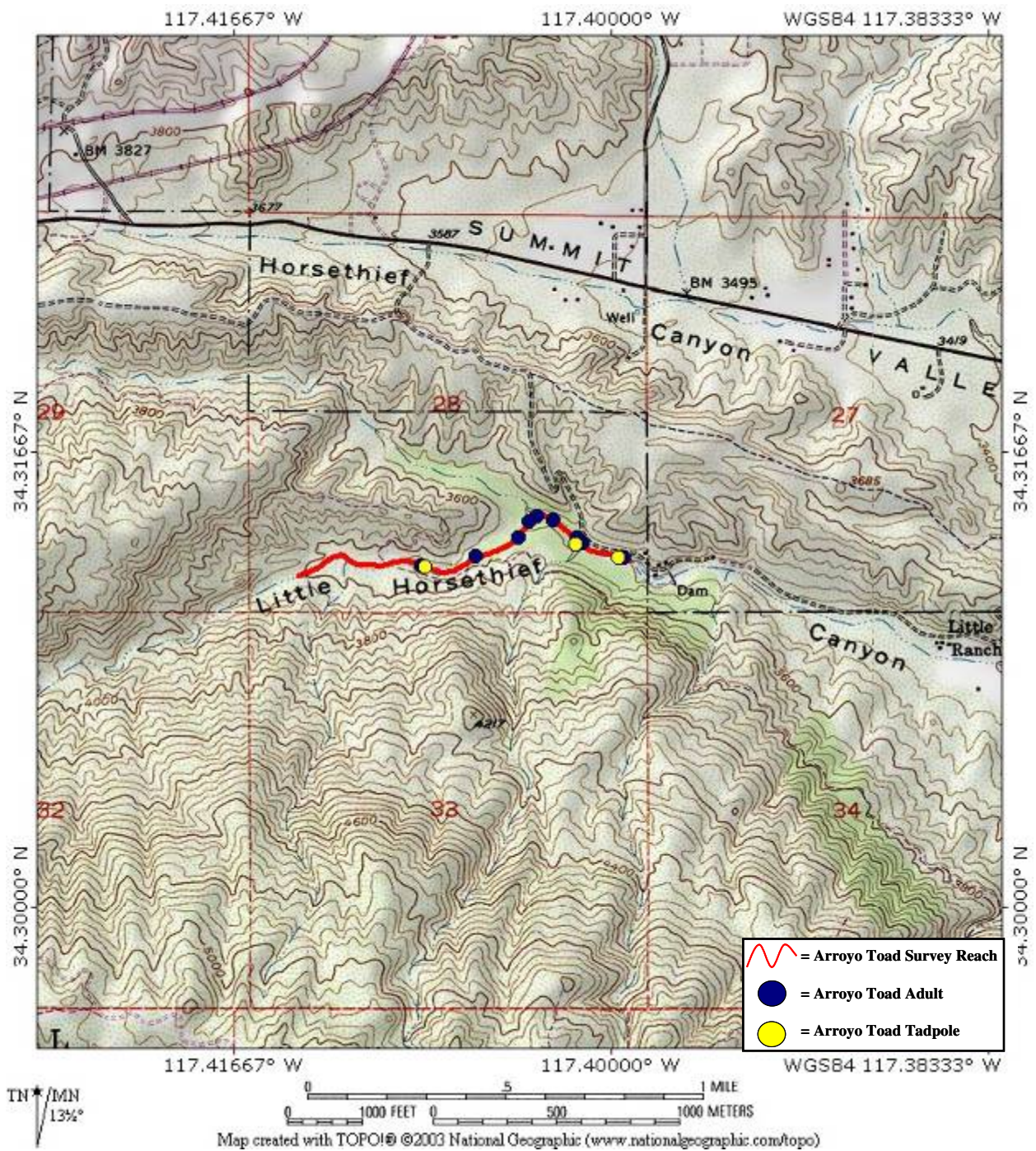


Figure 9. 2005 arroyo toad survey reach at Little Horsethief Canyon.



Figure 10. Habitat pictures from the arroyo toad survey reaches. Top: Cajon Wash; Center: Cucamonga Creek, Mainstem; Bottom: Cucamonga Creek, West Fork.



Figure 11. Habitat pictures from the arroyo toad survey reaches. Top: Deep Creek Devil's Hole; Center: Deep Creek Hot Springs; Bottom: Deep Creek Mojave Forks Dam.

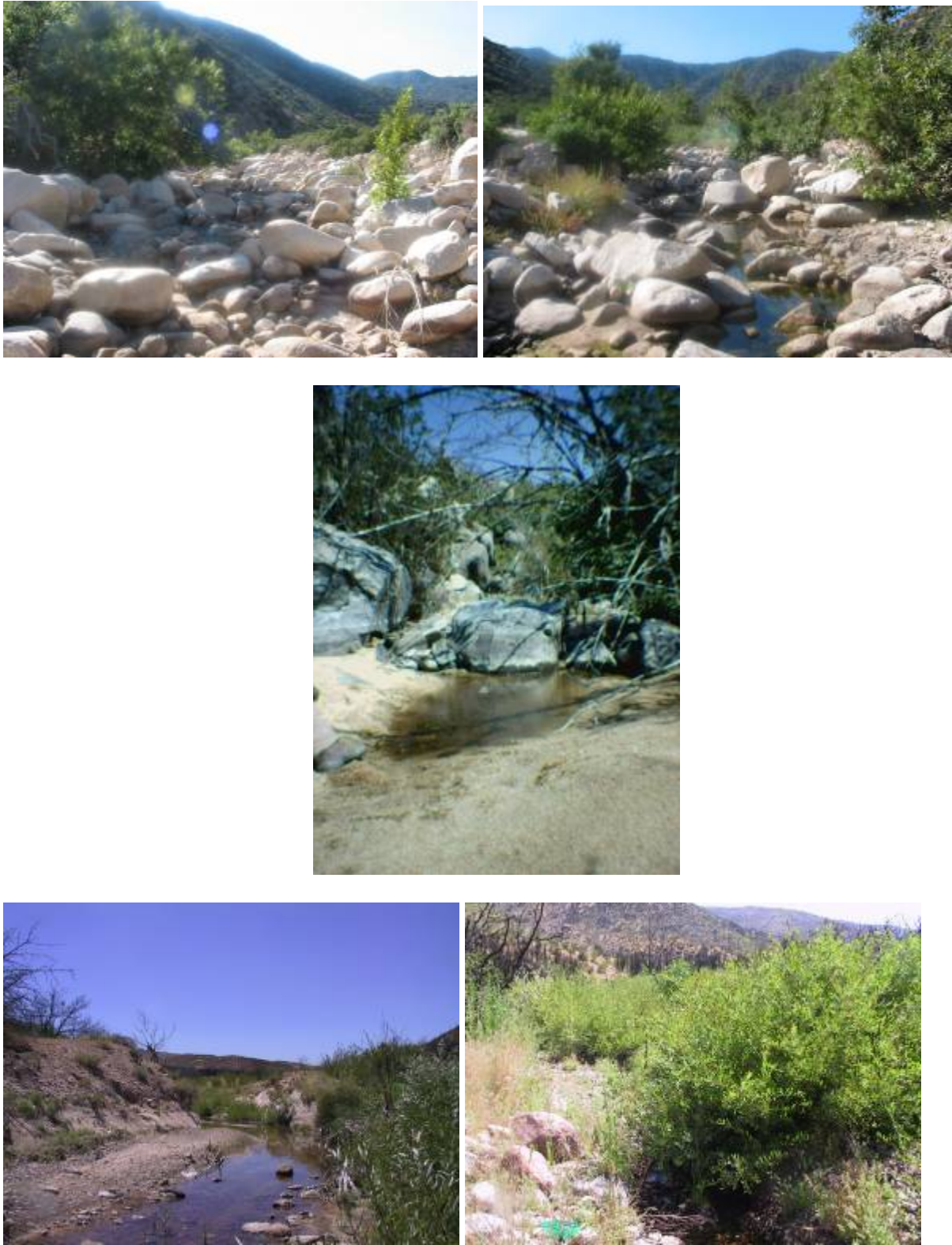


Figure 12. Habitat pictures from the arroyo toad survey reaches. Top: Grass Valley Creek; Center: Kinley Creek; Bottom: Little Horsethief Canyon.



Figure 13. Representative pictures of an arroyo toad egg mass, tadpole and adult observed.



Figure 14. Photographic comparison of arroyo toad metamorph and western toad metamorph as seen dorsally (top) and ventrally (bottom).