United States Department of the Interior

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OCT 13 2010

William Fickel, Jr.
Chief, Planning, Environmental, and Regulatory Division
U.S. Army Corps of Engineers
P.O. Box 17300
Fort Worth, Texas 76102-0300

Consultation No. 21450-2010-F-0326

Dear Mr. Fickel:

This transmits our final biological opinion for the proposed authorization under section 404 of the Clean Water Act for bank stabilization on the North Concho River, San Angelo, Tom Green County, Texas, in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*)(Act). We appreciate the assistance provided by your staff and the Upper Colorado River Authority in completing this consultation.

If you have any questions regarding the enclosed biological opinion, please contact Patrick Connor at (512) 490-0057, extension 227.

Sincerely,

/s/ Adam Zerrenner

Adam Zerrenner
Field Supervisor

cc: Benjamin Tuggle, Regional Director, Region 2, Albuquerque, NM
Gary Mowad, Texas State Administrator, Austin, TX
Stephen Brooks, USACE, Fort Worth, TX, PER-R
Jennifer Walker, USACE, Fort Worth, TX, PER-RP

Enclosure

TAKE PRIDE® IN AMERICA

This transmits the U.S. Fish and Wildlife Service's (Service) final biological opinion based on our review of the proposed authorization of bank stabilization on the North Concho River (proposed action), and its effects on the Concho watersnake (*Nerodia paucimaculata*) in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*)(Act). The U.S. Army Corps of Engineers (USACE) would authorize the action under section 404 of the Clean Water Act (33 U.S.C. 1251). The purpose of the proposed action is to abate erosion along the banks of the North Concho River. It is anticipated that the proposed action may adversely affect the Concho watersnake, federally listed as threatened pursuant to the Act. The USACE requested formal consultation through an August 31, 2010, electronic mail (e-mail) correspondence. The Service acknowledged receipt of the request for formal consultation through an August 31, 2010, e-mail correspondence. Although critical habitat has been designated for the Concho watersnake in and near the Concho River, the Service does not anticipate that the proposed action (bank stabilization) will adversely modify any designated critical habitat.

The findings and recommendations in this biological opinion are based on: (1) information provided by the City of San Angelo (City); the Upper Colorado River Authority (UCRA); Colorado River Municipal Water District (CRMWD); Jacob Engineering Group, Inc.; Turner Biological Consulting, LLC; Kinney Franke Architects; the U.S. Army Corps of Engineers (USACE); U.S. Geological Survey (Austin, Texas and Patuxent, Maryland); and other agencies, (2) the former Concho watersnake Recovery Team and other experts on the Concho watersnake, (3) field investigations, and, (4) other sources of information available to the Service.

Consultation History

July, 2009	The USACE provided information to the Service regarding the proposed sediment removal and bank stabilization project on the North Concho River by the City and UCRA (Consultation No. 21450-2009-I-0214);
October 6, 2009	Site visit with USACE and UCRA; project was separated into two parts, initial authorization and work involved sediment removal through hydraulic dredging; and post-dredging, informal consultation will continue regarding bank stabilization;
October 13, 2009	USACE determined sediment removal (dredging) was not likely to adversely affect the Concho water snake; the Service concurred and the timeframe for completion of dredging is extended to March 21, 2010 (Consultation No. 21450-2009-I-0214);
December 4, 2009	The Service concurs with USACE plans to authorize downstream expansion of the area to be dredged (Consultation No. 21450-2009-I-0214);
April 28, 2010	Conference call with USACE, the City and UCRA on bank stabilization project; Determination made that applicant would assume presence of Concho watersnake in the project area and

	provide a biological assessment for bank stabilization (Consultation No. 21450-2010-I-0236);
June 3, 2010	USACE provided biological assessment to the Service;
August 31, 2010	USACE sent an e-mail correspondence dated August 31, 2010, requesting formal consultation on the bank stabilization project and the Service acknowledged the request through e-mail correspondence;
October 5,2010	The Service sent the draft biological opinion to the USACE;
October 8, 2010	The USACE sent an e-mail correspondence with their comments on the draft biological opinion to the Service.

BIOLOGICAL OPINION

Proposed Action

The USACE received an application pursuant to section 404 of the Clean Water Act to stabilize the banks of the North Concho River in San Angelo, Tom Green County, Texas. The Concho River Parks and Trails Rehabilitation Project would stabilize the banks of the North Concho River from the 29th Street Bridge downstream to the Johnson Dam (just below Oakes Street Bridge). Bank stabilization will mainly involve bioengineering methods, which use limestone slabs and large (9 to 24 inch) boulders. Approximately two thirds of the bank stabilization treatments (as measured in river-feet) will use limestone slabs and boulders. UCRA proposes to repair or replace reinforced concrete walls in one section (C112)(UCRA and Kinney Franke Architects Bank Stabilization Project Drawing Set, June 24, 2010 on CD-ROM). Additional methods of bank stabilization will include cellular confinement systems, minor bank grading, and geo-textile fabric planted with native vegetation.

The UCRA provided the following documents on the project: (1) a pre-construction notification, dated May 13, 2009, (2) an updated pre-construction notification, dated July 20, 2009, (3) a biological assessment of the proposed *North Concho River Bank Stabilization Project* by Turner Biological Consulting, dated June, 2010 (Biological Assessment), and (4) project drawings on CD-ROM from Kinney Franke Architects.

Proposed Conservation Measures

UCRA proposes to:

a) stabilize approximately 21,151 linear feet of North Concho River banks using predominantly bio-engineering techniques with limestone slabs, stepped-up eroded banks, and 9 to 24-inch boulders with vegetation intermixed;
b) prevent, as much as practicable, erosion along the North Concho River banks while minimizing impacts to the waters of the U.S.;
c) use methods of construction that allow fulfillment of engineer's specifications without working below the water's edge;
d) use best management practices that eliminate or minimize the risk of contamination of aquatic and riparian habitats
e) conserve North Concho River aquatic habitats during construction by maintaining water depths.

Initial plans for bank stabilization involved concrete retaining walls and extensive use of rock gabions. Subsequently, the City and UCRA modified the proposed bank stabilization to include methods that reduce hard surfaces and edges (such as concrete walls) in favor of limestone slabs and boulders. Limestone slabs and boulders were selected by UCRA due to the heavy visitation and high visibility of the project in the downtown river segment. These types of rocks placed near the river's edge will likely enhance habitat suitability for the Concho watersnake above the current conditions. In addition, UCRA changed the downstream project boundary to Johnson Dam, instead of the North Concho River confluence with the South Concho River, effectively avoiding the lowest reach of the North Concho River, which is closest to a known Concho watersnake population.

For more specific information regarding the proposed project and proposed conservation measures, please refer to the Biological Assessment, which describes the proposed construction methods including: (1) ensuring equipment does not present any unnecessary pollution risks, (2) maintaining nearby aquatic habitats, and (3) use of best management practices to prevent sedimentation from construction areas.

Description of the action area

The action area includes the North Concho River and adjacent tracts from the 29th Street Bridge downstream to a point 1.9 miles below Bell Street Bridge-Dam (Figures 1 and 2). Bank stabilization will take place on designated sections between the 29th Street Bridge and Johnson Dam. Since Concho watersnakes may move from the Bell Street area to occupy habitat along river and banks designated for stabilization, the Service has included the riffle complex below Bell Street Dam in the action area.

Status of the species

For more information regarding the species addressed in this biological opinion, please refer to the 1993 *Concho Water Snake Recovery Plan* (Recovery Plan).

The Concho watersnake (*Nerodia paucimaculata*) was listed as threatened on September 3, 1986 (51 FR 31412). Critical habitat was designated on June 29, 1989 (54 FR 27377). The Service made a not substantial 90-day petition (to delist the Concho watersnake) finding on August 2, 1999 (64 FR 41903). The Service proposed to delist the Concho watersnake on July 8, 2008 (73 FR 38956). The draft post-delisting monitoring plan was noticed in the Federal Register on September 23, 2009 (74 FR 48595).

Species Description and Life History

The Concho watersnake is among the smallest species of *Nerodia* in Texas (Werler and Dixon 2000). Mature males average about 15 inches snout-vent length (SVL), and mature females average about 18 inches)(Greene et al. 1999). The species has four rows of alternating dark-brown blotches on its back, two rows on each side (Werler and Dixon 2000). The back features a checkerboard of dark brown blotches on a gray, brown, or reddish-brown background. The belly of the snake is typically light-colored, often centrally tinged with pink or light-orange (Conant and Collins 1991, 1998; Rose and Selcer 1989).

Timing of reproduction in the Concho watersnake is typical of *Nerodia*, with a spring mating period followed by giving birth in late summer (Fitch 1970). Males reach sexual maturity at

approximately one year but females produce their first litter after two to three years, depending on their reproductive development (Werler and Dixon 2000).

Concho watersnakes feed almost exclusively on fish (Williams 1969; Rose 1989; Dixon et al. 1988, 1989, 1990, 1991, 1992; Greene 1993; Greene et al. 1994; Thornton 1990, 1992), and have been observed feeding both during the day and at night. Observed feeding behavior involves anchoring the body around rocks, usually in shallow water, and probing among the rocks, trapping fish prey in cracks and crevices. In riverine habitat and especially among neonates, minnows (Cyprinidae) are the primary food source.

In its historic range in Texas (Concho River downstream of San Angelo and Colorado River downstream of Robert Lee), the Concho watersnake is the most common watersnake (*Nerodia*). The Concho watersnake is closely associated with and is seldom found far from water. Werler and Dixon (2000) stated Concho watersnakes are usually found within 10 feet of water. Greene (1993) tracked daily movement of Concho watersnakes and reported snakes were confined to the water (river or lake) and associated river bank within 16 feet of water. Rocks are important for refuge and gravid females are often found in and on debris piles. Overhanging vegetation provides basking sites. The snake over-winters in crayfish burrows and other holes in river-banks and reservoir shorelines. The snake also uses rock cover as shelter throughout the year.

Historic and Current Distribution

The historic range of the Concho watersnake included: (1) the Colorado River near the City of Robert Lee downstream to the vicinity of Bend (upstream of Lake Buchanan), (2) Elm Creek, Bluff Creek, and Coyote Creek (all in Runnels County), (3) the entire Concho River, and (4) tributaries of the Concho River, including the South Concho River, Dove Creek, and Spring Creek.

The current distribution of the Concho watersnake includes: (1) the Colorado and Concho rivers in west central Texas, and (2) artificial shoreline habitat of O.H. Ivie Reservoir, Ballinger Municipal Lake (also known as Moonen Lake), and E.V. Spence Reservoir. Counties of known occurrence include Brown, Coke, Coleman, Concho, Lampasas, McCulloch, Mills, Runnels, San Saba, and Tom Green counties. Whiting et al. (2008) described five subpopulations: (1) Spence Reservoir and above, (2) Upper Colorado River (downstream of E.V. Spence Reservoir and upstream of O.H. Ivie Reservoir, including tributaries, (3) O.H. Ivie Reservoir, (4) Lower Colorado River (downstream of O.H. Ivie Reservoir), and (5) Concho River.

A few tributaries of the Colorado and Concho rivers sustain populations of Concho watersnakes. South Concho River and Dove Creek, tributaries to the Concho River upstream of San Angelo, historically had Concho watersnakes (Marr 1944; Tinkle and Conant 1961; Scott et al. 1989). Since 1979, surveys upstream of San Angelo have only resulted in the collection in 1985 of 2 specimens in Spring Creek, a tributary to Twin Buttes Reservoir (Scott et al. 1989). No recent information is available for Concho watersnake occurrence in tributaries of the Concho River in the San Angelo area.

Over a period of years, Concho watersnakes may move long distances (Greene 1993, Whiting et al. 1997, Werler and Dixon 2000). Researchers documented movements up to 12 miles. During the course of a season, most snakes probably move less than 0.2 miles (Werler and Dixon 2000).

Researchers monitored more than 15 sites for a period of ten years and detected 71 cases where tagged Concho watersnakes moved between sites.

The Service selected monitoring sites to represent conditions in the upper Colorado River, lower Colorado River, and Concho River. Researchers from CRMWD and Texas A&M University monitored Concho watersnakes at these sites from 1987 through 1996. The average distance between sites was probably too large to capture typical Concho watersnake movements (in the 0.3 to 3.1-mile range). Snakes moved upstream, downstream, and along reservoir shorelines. Approximately half of the movements detected were less than 0.6 miles and approximately a third of movements detected were between 0.6 and 1.2 miles.

Reasons for Decline and Threats to Survival
The proposed rule to delist the Concho watersnake reviewed the five factors that the Service considers when making a listing decision. The primary factor considered was the present or threatened destruction, modification, or curtailment of its habitat or range. The threats analysis in the proposed rule examined: (1) the status of riverine and reservoir (lakeshore) habitats, (2) drought, (3) flooding effects, (4) instream flows, (5) vegetation encroachment, (6) fragmentation of habitat by dams, (7) pollution and water quality, (8) overutilization, (9) disease and predation, and (10) inadequacy of existing regulatory mechanisms.

Range-wide Survival and Recovery Needs
There are numerous actions listed in the Recovery Plan regarding specific recovery efforts. Generally, protection of existing populations, sustainability and/or improvement of water quality and quantity, and protection of habitat are required at various levels to achieve recovery. Please refer to the Recovery Plan (Service 1993) for actions prescribed for recovery (Section II. Recovery).

Environmental Baseline
Status within the action area
The Concho watersnake population in the action area consists of a population associated with the tailrace riffle complex below Bell Street Dam (Figures 1 and 2). There are no known current populations upstream of the Bell Street Dam on the North Concho River, the South Concho River, or their respective tributaries.

Okla Thornton, Jr. (CRMWD) classified the quality of Concho watersnake habitat throughout its range, evaluating river and reservoir shoreline on a scale of 1 to 10, with 10 being optimal (see Appendix B in Service 2004). He classified the Concho River in the San Angelo area as low quality habitat (valued at 2) for the Concho watersnake (Figure 1). Going downstream of San Angelo, Concho watersnake habitat in the Concho River becomes more continuous downstream of Mullin's Crossing (northeast of the town of Veribest) and the highest quality habitats are associated with the Concho River downstream of Paint Rock.

Factors affecting the Concho watersnake within the action area
The Recovery Plan (Service 1993) identifies a number of threats to the Concho watersnake including: (1) habitat loss from reservoir inundation, (2) modified river flow regimes, (3) decreased water quality, (4) fragmentation, and (5) sediment deposition – vegetation encroachment. The City and UCRA are working to improve water quality in the North Concho River with a goal of removing this classified segment from the list of impaired waters in Texas

(due to low dissolved oxygen and bacteria). One objective of the Concho River Parks and Trails Rehabilitation project is to decrease sediment sources to the North Concho River by controlling erosion. Bank stabilization will help address sediment sources near the river.

The Service has formally consulted with the USACE on the CRMWD water operations and provided a biological opinion on December 3, 2004. The reasonable and prudent measures from that biological opinion specify that CRMWD, in coordination with USACE and the Service, will: (1) minimize adverse effects to Concho watersnake habitats, and (2) move Concho watersnakes once every three years to artificially maintain genetic flow and counteract habitat fragmentation caused by Robert Lee Dam (E.V. Spence Reservoir) and Freese Dam (O.H. Ivie Reservoir).

Effects of the Proposed Action

The City and UCRA propose to stabilize the banks of the North Concho River. Bank stabilization will result in disturbance to the ground and margins of the North Concho River where treatments are made. Some areas currently occupied by a mix of native and non-native plants will be replaced by large rip-rap boulders. UCRA proposes using the following methods (with river-feet to be treated): boulders (5,034 ft), limestone slabs (4,336 ft), cellular confinement system (3,412 ft), geo-textile fabric stabilization with native vegetation (1,442 ft) and concrete walls (47 ft). This work will treat erosion problems as designated in the July 20, 2009, pre-construction notice. In addition, there will be minor bank grading. Mean fill below the ordinary high water mark is estimated between 0.5 and 1.0 cubic yard per running foot of treatment, depending on the method. Incidental take of the species covered under this biological opinion will be estimated in terms of the direct and indirect effects to habitat resulting from stream bank disturbance during the proposed construction.

Due to a lack of information on Concho watersnake densities in the North Concho River during construction, the Service does not know the complete extent of the effects of bank stabilization treatments. One potential effect of bank stabilization during the construction phase is the destruction of burrows near the river, including those made by crayfish. A Concho watersnake may be in a burrow and fail to escape to the river (as is typical of watersnakes) before the burrow collapses or is covered.

Some Concho watersnakes will potentially be disturbed from basking sites during the construction phase. However, after construction is completed, Concho watersnake habitat suitability should be improved where bank stabilization methods use limestone slabs and/or boulders. Maintenance of existing reinforced concrete walls will be limited to a small section of the bank near important structures. Repairs to concrete walls will involve the temporary construction of forms below and above the normal water level. While concrete walls may be used for basking, it is anticipated that Concho watersnakes will move away from areas when walls are being repaired. Once disturbed, Concho watersnakes are expected to swim away, particularly if there is a lack of cover (places to hide).

The Service anticipates that during construction, there will be habitat disturbance. Concho watersnakes will either attempt to escape to the river, retreat to vegetation if available (or some other form of cover), or hide in burrows. After construction, the Service anticipates that there will be an increased variety and quantity of rock cover (refugia in which to hide near the river). These new patches of rock habitat are expected to provide better opportunities for snakes to thermoregulate and escape from predators.

Predators of Concho watersnakes include raccoons (*Procyon lotor*), raptors (family Accipitridae), herons (family Ardeidae), kingsnakes (*Lampropeltis getula*), coachwhip snakes (*Masticophis flagellum*), and racers (*Coluber constrictor*)(Green 1993). The project is expected to increase visitation (human foot traffic) along the river. This may reduce the presence (or alter the behavior) of great blue herons, green herons, and other predators of watersnakes.

Although the Service anticipates adverse effects to the Concho watersnake from the project in the short term, these will be temporary. Overall, the project is expected to provide long-term benefits to the Concho watersnake by improving water quality in the North Concho River, enhancing habitat for cover and thermoregulation, and reducing the likelihood of predation of Concho watersnakes.

Cumulative Effects

Cumulative effects include the effects of future State, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

A variety of impacts to Concho watersnake habitat and to snakes themselves are expected in the future. However, many of these activities are not subject to Federal authorization or funding and may alter the habitat or increase incidental take of species covered by this opinion and are, therefore, cumulative to the proposed project. These additional cumulative effects include:

(1) increased demand on surface and groundwater, reducing instream flows in the Concho and Colorado rivers;
(2) increased urbanization, (e.g., roads) and pollution (e.g., from vehicles);
(3) recreational activities such as fishing (including trot-lines),
(4) contaminated runoff from agriculture and urban areas;
(5) aquatic habitat modification (e.g., dams, bank stabilization, flood control); and,
(6) habitat alteration by invasive exotic / non-native species.

As the population grows in the San Angelo region, there will be increased water demands, potentially resulting in: (1) additional water diversions from reservoirs and rivers, (2) decreased return flow (treated wastewater) to the Concho River due to the demand for water for agricultural irrigation, and (3) inadequate instream flows in the Concho and Colorado rivers.

Conclusion

After reviewing the current status of Concho watersnake, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that the proposed action is not likely to jeopardize the continued existence of this species. The proposed bank stabilization on the North Concho River is not expected to appreciably alter the distribution or population size of the Concho watersnake in the Concho River. The proposed action, once completed, is expected to enhance Concho watersnake habitat and provide a long-term benefit to the local population. Critical habitat occurs downstream of the project area for these species; however, the Service does not anticipate that the proposed action will adversely modify designated critical habitat for this species.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined by the Service as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is further defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns, which include, but are not limited to, breeding, feeding, and sheltering (50 CFR §17.3). Harm is also defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by impairing behavioral patterns, including breeding, feeding, and sheltering. Incidental take is defined by the Service as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2) of the Act, taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking, provided that such taking is in compliance with this incidental take statement.

The measures described below are nondiscretionary and must be implemented by the USACE so they become binding conditions of any authorization issued to implement a project covered by this biological opinion, as appropriate, in order for the exemption in section 7(o)(2) to apply. The USACE has a continuing duty to regulate the activity covered by this incidental take statement. If the USACE (1) fails to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the authorizations, and/or (2) fail to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the USACE (effectively UCRA) must report the progress of the action and its impact on the species to the Austin Ecological Services Field Office as specified in the incidental take statement. [50 CFR 402.14(i)(3)].

Amount or Extent of Take

The Service anticipates incidental take of Concho watersnake may occur as a result of the proposed action. The proposed construction may directly or indirectly affect habitat for the Concho watersnake. However, it is difficult to estimate potential take. For example, bank stabilization treatments may inadvertently damage or close off burrows and permanently trap burrow inhabitants.

Due to a lack of information on the Bell Street population of Concho watersnakes, the Service reviewed other sites where the population size of Concho watersnakes has been estimated. Mueller (1990) studied Concho watersnake population dynamics at sites on the Concho and Colorado rivers, Elm Creek, O.H. Ivie Reservoir, and Ballinger Municipal Lake. His population size estimates ranged from 6 to 311 (qualified by standard errors). Mueller's Elm Creek sites are considered to be an adequate surrogate for the Bell Street site. Thornton classified the Concho watersnake habitat quality below Bell Street as similar to the Concho watersnake habitat in the Elm Creek watershed, on Turkey Creek, north of Ballinger. Considering the habitat quality, the Service estimates the Concho watersnake population near Bell Street to be slightly less than the mid-range of Mueller's population size estimates (or approximately 100 individuals).

Concho watersnakes are known to occur below the Bell Street Bridge. It is possible that an individual snake may surmount or outflank (moving along the bank) the dam and swim upstream

into the North Concho River. The number of snakes involved in this type of dispersal is not known, but probably represents much less than 10 percent of the Bell Street population. A Concho watersnake dispersing upstream above Bell Street Dam may move into the South Concho River, the North Concho River, or both. The Johnson Dam (weir) on the North Concho River is approximately 1.7 river-miles upstream of the Bell Street Dam. The Johnson Dam is the downstream end of the bank stabilization treatments. The Service believes the number of Concho watersnakes likely to be above the Johnson Dam is small when compared to the Bell Street population. Concho watersnakes are most likely to be encountered during bank stabilization in the lowest reach of the river where work will occur.

If Concho watersnakes are found basking where bank stabilization is imminent (the same day), we anticipate the snakes generally will attempt to escape by entering the river and swimming away. A small fraction of snakes may try to hide in any available cover and may be undetected. Based on: (1) an estimated population size of 100 for Concho watersnakes below Bell Street Dam, (2) estimated dispersal of 10 percent of that population above the Bell Street Dam (n = 10), and (3) half (n = 5) of the watersnakes going in the North Concho River (the other half moving to the South Concho River), the Service estimates that no more than five Concho watersnakes will move into the construction area and may be adversely affected by the entire construction phase of the project and no take will occur in the post-construction phase.

Effect of the Take

In the accompanying biological opinion, the Service has determined that potential adverse effects associated with the proposed action is not likely to result in jeopardy of the Concho watersnake. Critical habitat has been designated for the Concho watersnake; however, the Service anticipates that the proposed action will not adversely modify Concho watersnake critical habitat.

Reasonable and Prudent Measures

The Service believes the following reasonable and prudent measure is necessary and appropriate to minimize incidental take of the Concho watersnake:

(1) The USACE shall, through conditions required in its section 404 authorization, minimize adverse effects of North Concho River bank stabilization to the Concho watersnake during the construction phase.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, the USACE must comply with the following terms and conditions that implement the reasonable and prudent measure described above and outlined reporting/monitoring requirements. These terms and conditions are non-discretionary.

The following terms and conditions implement the reasonable and prudent measure no. 1:

1. The City and UCRA and its contractors, in coordination with the USACE and the Service, will avoid impacting, to the maximum extent practicable, any snakes found on or near the bank stabilization work area.
2. Limestone slab and boulder stabilization methods will account for the majority of bank stabilization treatments. Large rock should be placed near the edge of the river where feasible. Placement of limestone slabs and boulders in the water (river

margins), which will enhance Concho watersnake habitat, is encouraged by (acceptable to) the Service, if consistent with USACE authorization.

The UCRA will report to the USACE and the Service on project progress. Reporting requirements include notifications (within 14 calendar days) that: (1) construction (including staging) has (a) begun, (b) been completed or (c) been suspended. Reports should be sent to the Field Supervisor, U.S. Fish and Wildlife Service, 10711 Burnet Rd., Suite 200, Austin, TX 78758 in the timeframe specified by this biological opinion.

Review Requirements

The reasonable and prudent measure, with its implementing terms and conditions, are designed to minimize the effects of incidental take that might otherwise result from the proposed action. With implementation of this measure, the Service believes that no more than five Concho watersnakes will be incidentally taken as a result of the proposed action. If, during the course of the authorized activities, the take limit authorized in this biological opinion is exceeded, re-initiation will be needed.

Conservation Recommendations

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

The recommendations provided here relate only to the proposed action and do not necessarily represent complete fulfillment of the agency's section 7(a)(1) responsibilities for these species.

1. The USACE should assist in the implementation of actions specified in the Recovery Plan for the Concho watersnake. For example, low-head dams on the North Concho River may be modified to create more riffle habitat.
2. The USACE should assist in post-delisting monitoring, should the Concho watersnake be delisted.
3. The UCRA should, in coordination with the USACE and the Service, develop signage for the parks and trail system to inform visitors of the potential presence of Concho watersnakes and ask visitors not to disturb wildlife.
4. The UCRA, in cooperation with CRMWD, the USACE, the Bureau of Reclamation, and the City should implement a Concho Valley – Colorado basin management plan that positively influences the magnitude and duration of flows in the Concho and Colorado rivers.

In order for the Austin Ecological Service's Field Office to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Field Office requests notification of the implementation of any conservation recommendations.

Reinitiation Notice

This concludes formal consultation on the Concho River Parks and Trail Rehabilitation project and proposed bank stabilization on the North Concho River.

As provided in 50 CFR Sec. 402.16, re-initiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this consultation; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this biological opinion; or, (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending re-initiation.

If you have any questions regarding this biological opinion, please contact Patrick Connor at (512) 490-0057, extension 227.

Sincerely,

/s/

Adam Zerrenner
Field Supervisor

Literature Cited

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Figure 1. North Concho River Bank Stabilization Project Action Area, Critical Habitat for Concho Watersnake, and Concho Watersnake Habitat Quality.

Figure 2. North Concho River Bank Stabilization – Detail of Project Extents

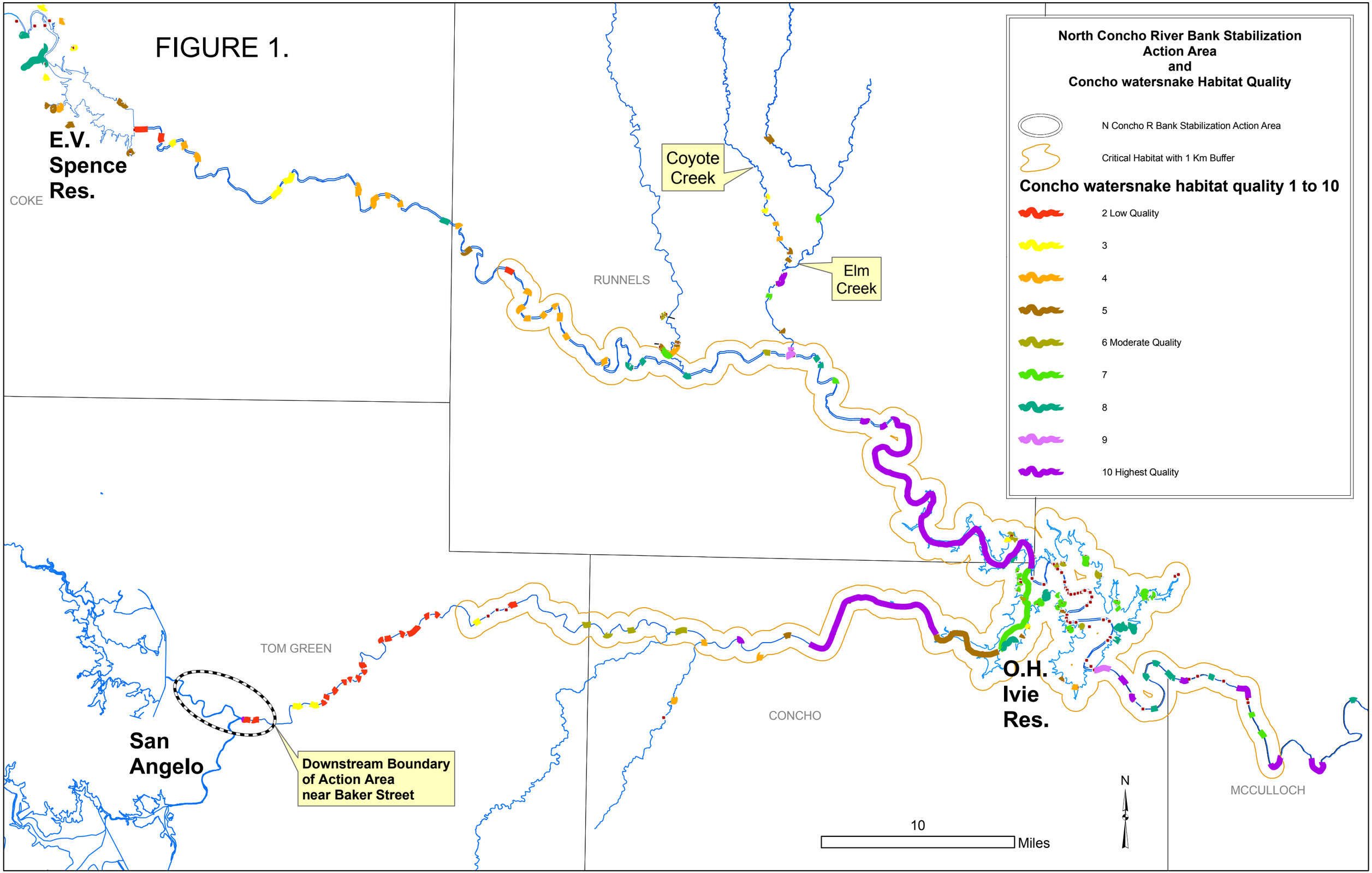
FIGURE 1.
E.V. Spence Res.
COKE
RUNNELS
Coyote Creek
Elm Creek
TOM GREEN
CONCHO
MCCULLOCH
O.H. Ivie Res.
San Angelo
Downstream Boundary of Action Area near Baker Street
10
Miles
N
North Concho River Bank Stabilization Action Area and Concho watersnake Habitat Quality
N Concho R Bank Stabilization Action Area
Critical Habitat with 1 Km Buffer
Concho watersnake habitat quality 1 to 10
2 Low Quality
3
4
5
6 Moderate Quality
7
8
9
10 Highest Quality

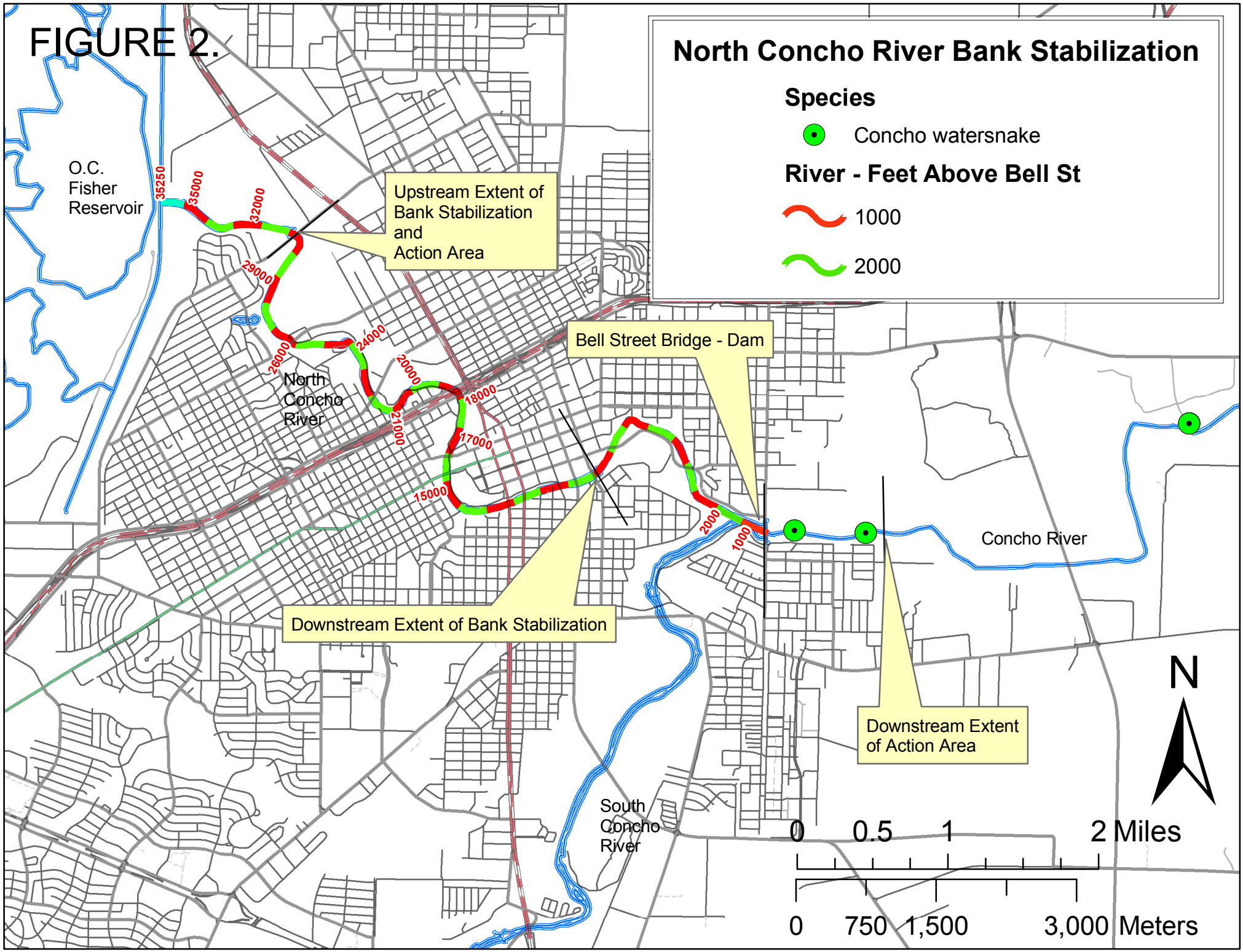
FIGURE 2.
North Concho River Bank Stabilization
Species
Concho watersnake
River - Feet Above Bell St
1000
2000
O.C. Fisher Reservoir
35250
35000
32000
29000
26000
24000
20000
21000
18000
17000
15000
2000
1000
Upstream Extent of Bank Stabilization and Action Area
Bell Street Bridge - Dam
North Concho River
Concho River
Downstream Extent of Bank Stabilization
Downstream Extent of Action Area
South Concho River
N
0 0.5 1 2 Miles
0 750 1,500 3,000 Meters