

**THE STATE OF TEXAS****INTERAGENCY COOPERATION CONTRACT****COUNTY OF TRAVIS**

This Contract is entered into by and between the State agencies shown below as Contracting Parties, pursuant to the authority granted and in compliance with the provisions of "The Interagency Cooperation Act", Chapter 771 of the Texas Government Code.

**I. CONTRACTING PARTIES:**

The Receiving Agency: Texas Parks and Wildlife Department (TPWD)

The Performing Agency: Texas Tech University, Lubbock, TX (TTU)

**II. STATEMENT OF SERVICES TO BE PERFORMED:**

TTU shall conduct a study entitled "Abundance and distribution of the threatened minnows *Campostoma ornatum* and *Notropis chihuahua* in the Trans-Pecos region of Texas" in accordance with the research proposal, attached hereto as Attachment A and incorporated herein for all purposes.

At least one (1) TPWD employee will serve as a project advisor and co-author of all publications resulting from this research. The project advisor shall 1) Serve on any graduate committee as an official or unofficial member, 2) Serve as a co-author on all publications resulting from this project, and 3) Monitor progress of the project.

All publications arising from this research shall acknowledge TPWD, as well as Cooperative Endangered Species Funds (Section 6), or such fund as may supersede it in funding this project.

All data and analyses resulting from this project, and all information regarding the project, becomes the joint property of TPWD and TTU, and will be presented to TPWD in an electronic format determined by TPWD upon request, and not later than 28 February 2011. TPWD agrees to refrain from publishing any results or analysis of this study for two (2) years after the termination date of contract, after which TPWD may publish with no restriction.

With respect to such Intellectual Property as is (i) incorporated in the Work, or (ii) produced by TTU or TTU employees, subcontractors, or subcontractor's employees during the course of performing the Work, TTU hereby grants to TPWD a nonexclusive, perpetual, irrevocable, enterprise-wide license to use, copy, publish, and modify such Intellectual Property, and allow others to do so for TPWD purposes. TTU shall secure all necessary intellectual property licenses from third parties and warrants that the Work and the intended use of the Work will not infringe any property rights of any third party.

Equipment and supplies purchased under this Agreement shall be used, managed, and disposed of in accordance with the Texas Uniform Grant Management Standards.

**III. BASIS FOR CALCULATING REIMBURSABLE COSTS:**

See Budget in Attachment A for details.

Funds must be directed to completing tasks outlined in Attachment A to qualify for reimbursement.

For payment purposes, the Performing Agency (agency receiving payment) shall submit to the Receiving Agency (agency making payment) an invoice with the Performing Agency's RTI (for funds transfer at the Treasury) or a Purchase Voucher (for deposit in local bank account). The Receiving Agency will enter payment information into USAS.

SEND VOUCHERS TO:  
Dr. C. Craig Farquhar  
Wildlife Division  
Texas Parks and Wildlife Department  
4200 Smith School Road  
Austin, Texas 78744

Expenditures for travel and travel-related expenses will be reimbursed at the official rate authorized by the State of Texas.

The performing agency may make adjustments up to 10% within cost categories without prior approval from TPWD, provided that the total reimbursable costs do not exceed total federal share costs.

#### **IV. CONTRACT AMOUNT:**

The total amount of this Contract shall not exceed: \$79,188.00 (Seventy Nine Thousand One Hundred Eighty Eight Dollars)

This contract is subject to cancellation, without penalty, either in whole or in part, if funds are not appropriated by the Texas Legislature, or otherwise made available, to the Texas Parks and Wildlife Department.

#### **V. PAYMENT FOR SERVICES:**

Receiving Agency shall pay for services received from appropriation items or accounts of the Receiving Agency from which like expenditures would normally be paid, based upon vouchers drawn by the Receiving Agency payable to Performing Agency.

Payments for service performed shall be billed: Monthly.

Invoices shall include appropriate documentation for expenses incurred and details of work completed during the invoiced period as well as a summary of cost share, if Match is required.

The cost of materials and supplies should be charged at their actual prices. Proper documentation is required for reimbursement.

All invoices and reports must be received within 60 days of end of each fiscal year or termination of contract. Invoices not received within this time frame may not be paid.

\$15,837.60, which is twenty percent (20%) of total Federal Share funds, will be held until receipt and acceptance of final report by TPWD.

Payments received by the Performing Agency shall be credited to its current appropriation item(s) or account(s) from which the expenditures of that character were originally made.

Budgeted monies not spent in a given fiscal year may be eligible to be rolled over to the following fiscal year(s).

Any excess costs from one awarded TPWD contract cannot be submitted for reimbursement against another TPWD contract.

Reimbursements are conditioned on the Contract activities being performed in compliance with the Contract.

#### **VI. CONTRACT CONTACT INFORMATION**

TPWD PI Name & Contact Info

TPWD Contract Point of Contact

Tammy Dunham  
Contract Specialist  
Texas Parks & Wildlife  
4200 Smith School Road  
Austin, Texas 78744

512-389-4752 office  
512-389-4677 fax  
tammy.dunham@tpwd.state.tx.us

Vendor PI Name & Contact Info

Dr. Christopher M. Taylor  
Associate Professor  
Department of Natural Resources Management  
Texas Tech University  
Box 42125  
Lubbock, TX 79409-2125  
Phone: 806-742-1983  
Fax: 806-742-2280  
Email: [cm.taylor@ttu.edu](mailto:cm.taylor@ttu.edu)

Vendor Contract Point of Contact Info

Jay McMillen  
Assistant Director  
Office of Research Services  
Texas Tech University  
Box 41035 – 203 Holden Hall  
Lubbock, TX 79409-1035  
Phone: 806-742-3884  
Fax: 806-742-3892  
Email: [jay.mcmillen@ttu.edu](mailto:jay.mcmillen@ttu.edu)

**VII. TERM OF CONTRACT:**

This Contract is to begin Upon date of signature by both parties, and  
shall terminate February 28, 2011.

An extension to this contract may be granted with prior written approval by TPWD.

This contract is subject to cancellation, without penalty, either in whole or in part, if funds are not appropriated by the Texas Legislature, or otherwise made available, to TPWD.

Non-discrimination: The undersigned is subject to Title VI of the Civil Rights Act of 1964, Section 504 or Rehabilitation Act of 1973, Title II of the Americans with disabilities Act of 1990, the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and offers all persons the opportunity to participate in programs or activities regardless of race, color, national origin, age, sex or disability. Further, it is agreed that no individual will be turned away or otherwise denied access to or benefit from any program or activity that is directly associated with a program on the basis of race, color national origin, age, and sex (in educational activities) or disability. The prime contractor shall ensure that this clause is included in all subcontracts.

Audit: Performing Agency understands that acceptance of funds under this contract acts as acceptance of the authority of the State Auditor's Office, TPWD or any successor agency, to conduct an audit or investigation in connection with those funds. Performing Agency further agrees to cooperate fully with the above parties in the conduct of the audit or investigation, including providing access to any information the state auditor considers relevant to the investigation or audit. Performing Agency shall ensure that this clause concerning the authority to audit funds received indirectly by subcontractors through the Performing Agency and the requirement to cooperate is included in any subcontract it awards.

Dispute Resolution: In accordance with Chapter 2261 of the Texas Government Code, the following Schedule of Remedies applies to this Contract in the event of substandard performance or other failure to conform to the requirements of the Contract or applicable law.

- (a) Reject the substandard performance and request corrections without charge to TPWD.
- (b) Issue a notice of substandard performance or other non-conforming act or omission.
- (c) Request and receive the return of any over payments or inappropriate payments.
- (d) Reject associated reimbursement requests and suspend payments, pending accepted revision of substandard performance or non-conformity. Note: Funds may be retained by TPWD for recovery of administrative costs or returned to funding source as authorized by agreements with the funding source and by state or federal law.
- (e) Suspend all or part of the Contract, pending accepted revision of substandard performance or non-conformity.
- (f) Terminate the contract, and request as permitted by law return of all equipment purchased of contract funds, return of all unexpended funds, and repayment of expended funds.

TPWD may avail itself of any remedy or sanction provided in this Contract or in law to recover any losses arising from or caused by Performing Agency's substandard performance or any non-conformity with the Contract or the law.

Performing Agency shall carry on the Contract Activities and adhere to the progress schedule during all disputes or disagreements with TPWD unless ordered to stop the Contract Activities. No Contract Activities shall be delayed or postponed pending resolution of any disputes or disagreements.

Neither payment by TPWD nor any other act or omission other than an explicit written release constitutes a release of Performing Agency from liability for losses under this Contract.

Other Law: Performing Agency understands and agrees that by accepting money for services under this contract, it will comply with all federal laws and regulations related to grants of federal funds under this contract. As part of this agreement, Performing Agency will make the necessary certifications and agreements required, including but not limited to federal assurances, Attachments B and C.

The undersigned contracting parties do hereby certify that, (1) the services specified above are necessary and essential for activities that are properly within the statutory functions and programs of the effected agencies of State Government, (2) the proposed arrangements serve the interest of efficient and economical administration of the State Government, and (3) the services, supplies or materials contracted for are not required by Section 21 of Article 16 of the Constitution of Texas to be supplied under contract given to the lowest responsible bidder.

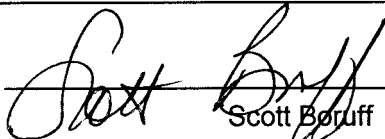
RECEIVING AGENCY

PERFORMING AGENCY

TEXAS PARKS AND WILDLIFE DEPARTMENT

TEXAS TECH UNIVERSITY

By:



Scott Boruff

Deputy Executive Director of Operations

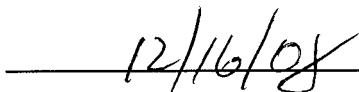
By:



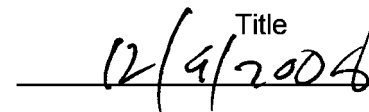
Kathleen Harris

Senior Associate Vice President for REsearch

Date:



Date:

 Title

## ATTACHMENT A

### **Abundance and distribution of the threatened minnows *Campostoma ornatum* and *Notropis chihuahua* in the Trans-Pecos region of Texas.**

#### **Need:**

The Rio Grande, and its major tributary the Rio Conchos, is one of North America's most endangered river systems due to extensive degradation in water quality, quantity and habitat. In the Trans-Pecos region of Texas the Rio Grande and its tributaries have undergone much change in the past 100 years, including dewatering, reduced water quality, impoundment, channelization, and the introduction of non-native species (Edwards et al. 2002). These changes have impacted fish assemblages tremendously with approximately one-half of the native fishes of the Chihuahuan desert now extinct or threatened with extinction (Hubbs 1990). By 2050, the population of the region and concomitant municipal water demands are expected to double (Texas Center for Policy Studies 2002), putting additional pressure on habitats that currently support native stream fishes.

*Campostoma ornatum* (Mexican stoneroller) and *Notropis chihuahua* (Chihuahua shiner) inhabit Rio Grande tributary streams in the Trans-Pecos region and are considered as Threatened by the Texas Parks and Wildlife Department and high priority species of concern under the Texas Wildlife Action Plan. Additionally, both species are on the Watch List by the Texas Organization of Endangered Species (1988), considered Threatened by Hubbs et al. (1991), listed as a Special Concern by Williams et al. (1989), and listed as Threatened by Miller (1972). Furthermore, *C. ornatum* is considered Endangered in Mexico (CONABIO 1997). Little is known about the biology of both species, yet both are native components to desert stream ecosystems that are under considerable stress from declining water quality and quantity (Hubbs and Wauer 1973).

*Notropis chihuahua* typically inhabits spring-fed streams over gravel and sand substrates (Burr and Mayden 1981). In past studies, Hubbs et al. (1977) and Edwards et al. (2002) found *N. chihuahua* to occur sporadically in Texas in the Big Bend region. Hubbs et al. (1977) found five specimens (less than 1% relative abundance) of *N. chihuahua* in the region, and Edwards et al. (2002) found two specimens from the Rio Grande near the confluence with the Rio Concho, four from Alamito Creek and 97 from Terlingua Creek. Platania (1990) and the International Boundary and Water Commission (IBWC, 1994) found none in their surveys. *Campostoma ornatum* has similar habitat requirements (Contreras-Balderas 1977) to the Chihuahua shiner and shows a similar pattern of distribution and abundance in Texas. Hubbs et al. (1977) found Mexican stonerollers in Alamito Creek and directly downstream in the Rio Grande. Bestgen and Platania (1988) found the species in abundance in Cibolo Creek (Presidio, TX) and Alamito Creek. Edwards et al. (2002) found two specimens in Terlingua Creek and reported its occurrence in Alamito Creek and its tributary Cienega Creek. Platania (1990) and the IBWC (1994) found no specimens of *C. ornatum* in their studies. Hubbs and Echelle (1973) stated that *C. ornatum* is potentially endangered due to drastic population reductions caused by the introduced *Fundulus zebrinus* and general habitat degradation. Both species have apparently declined in abundance and distribution in Texas over the last 30 years (B. Edwards, S. Platania pers. comm.).

The Rio Grande system in Texas, as with most southwestern rivers, is but a shadow of its former self. Tributary creeks to the Rio Grande in the Trans-Pecos region are critical for the successful reproduction of many native fish species, including *N. chihuahua* and *C. ornatum* (Edwards, et al. 2002; Hubbs et al. 1977). Sporadic occurrences of both species in the Rio Grande itself may indicate metapopulation structures, with dispersal from tributaries occurring through the river. Because this potential dispersal corridor has changed in quality and quantity over the past 100 years (Hubbs and Wauer 1973), tributary populations may be at risk from ecosystem fragmentation.

#### **Objective:**

To determine seasonal and yearly patterns of abundance, distribution, and habitat use for *Notropis chihuahua* and *Campostoma ornatum* in tributary streams to the Rio Grande in Texas.

#### **Expected Results and Benefits:**

Maintaining the integrity of our natural resources while continuing to support economic growth and a growing human population represents a considerable challenge to resource managers and conservationists. Stream and

river systems, in particular, are very sensitive to human activities that occur in their drainage basins. Ecosystem fragmentation and disruption of the natural flow regime (see Poff et al. 1997) is an exceedingly complex issue with ecological, economic, and social implications. The Trans-Pecos region of Texas contains many unique aquatic environments and species that inhabit them. Unfortunately, many of these species and their habitats have been little studied (Edwards et al. 2002) and extinctions are occurring at a rapid pace (Hubbs 1990). This proposed work will document the abundance, distribution, and habitat characteristics of two declining Chihuahuan desert fishes that maintain populations of questionable status in Rio Grande tributaries of Texas.

Practical benefits from this work will include an understanding of how secure populations of these two species are in Texas. This knowledge will benefit the Texas Parks and Wildlife Department, Big Bend National Park, and resource managers and planners charged with managing flows and water quality in the Rio Grande system. Knowledge of how abundance and distribution correlate with physical habitat and water quality will aid the U.S. Fish and Wildlife Service regarding their need for species-specific, conservation information. Other benefits incorporate educational aspects, including the experience and skills gained by graduate and undergraduate students working on the project, and the production of sound, easily applied statistical models that relate species abundance to physical and chemical stream conditions. These models should prove useful for future researchers studying or monitoring these species. Finally, the results of this work should benefit the people who live, work, and recreate in the region by helping to maintain and prevent further loss of their natural heritage—the unique fish fauna that inhabits the Chihuahuan desert streams of Texas.

### **Approach:**

**Task 1.** January 2009. A reconnaissance visit will be made to the region to locate potential sampling sites. Visit with personnel at Big Bend National Park and Big Bend Ranch State Park. Visit with Dr. Bonnie Warnock and Dr. Kevin Urabanczyk at Sul Ross State University; both are conducting water related research in the region.

**Task 2.** March 2009 (spring sample, year 1). Begin sampling at predetermined localities. Sampling methods are outlined below stated Tasks. After each field trip, samples will be sorted and all data (fish and habitat) will be entered into an Excel database.

**Task 3.** June 2009 (summer sample, year 1).

**Task 4.** September 2009 (fall sample, year 1).

**Task 5.** December 2009 (winter sample, year 1). Completion of first year of study. With four seasonal samples completed, preliminary data analysis and statistical modeling will begin. Preliminary results will be presented at the Texas Chapter of the American Fisheries Society meeting.

**Task 6.** March 2010 (spring sample, year 2)

**Task 7.** June 2010 (summer sample, year 2)

**Task 8.** September 2010 (fall sample, year 2)

**Task 9.** December 2010 (winter sample, year 2). Completion of second year of study. Final data input, analyses and model selection will be completed. All collected specimens will be delivered to the Ichthyology Collection at the Texas Natural Science Center (TNSC) at The University of Texas at Austin (Dr. Dean Hendrickson, Curator).

### **Sampling methods.**

Fish will be systematically sampled from each site using snorkeling, seining, and backpack electrofishing techniques as appropriate. Snorkeling provides an innocuous but efficient way to accurately estimate abundance levels and the presence of rare species in clear, spring-fed habitats (Taylor, 1997). Seining and electrofishing provide quantitative samples that are not dependent on water clarity. Voucher specimens will be taken from each sampling locality, but individuals will be returned alive, when possible, to sampled habitats after identification and enumeration. Vouchers will be anesthetized in an MS-222 solution, fixed in 10% formalin, and preserved in 70% ethanol.

For each locality where fishes are sampled, an array of habitat data will be collected according to standard procedures the P.I. has been using effectively for over 20 years. Measured variables will include habitat width, depth, current velocity, substrate composition, presence of aquatic macrophytes, turbidity, conductivity, and chlorophyll *a* (an indicator of primary productivity).

#### Data analyses

A suite of univariate and multivariate techniques will be used to relate occurrence and abundance to measured habitat variables. Coefficients of variation (CVs) will be calculated across time for both species at each site and regression models will be built to explain patterns of occupancy, abundance, and variation based on measured habitat variables and variation in habitat conditions across time. The performance of each model, or the goodness-of-fit relative to the number of parameters, will be evaluated using Akaike's information criterion (AIC) with sample-size correction (AICc). The core idea of this approach is to estimate the 'loss of information' that occurs when constructing various models of reality. The measure of information loss consists of a mathematical term estimating the goodness-of-fit to a data set (e.g. sum-of-squares) and a term estimating the effect of the number of estimated parameters (i.e. complexity). Thus, AIC embodies the principle of parsimony – identifying the simplest model that explains the most variance in a dependent variable.

Study sites will be ordinated based on measured environmental variables to create a habitat-based template. Abundance levels of target species will be mapped onto this multivariate template providing a visually interpretable assessment of how species are responding to spatial and temporal environmental variation in the region.

#### **Location:**

Primary locations – Terlingua, Alamito, Cienga, and Tornillo creeks  
Presidio and Brewster Counties  
Texas  
USA

The research will be conducted in three primary systems that drain into the Rio Grande and that are historically known to harbor the target species. Other localities will be investigated to determine if the target species are present. The following systems will be sampled intensively according to the scheduled fieldwork outlined in the Approach. Specific locality data for Terlingua, Alamito, and Tornillo Creeks were obtained from the Handbook of Texas Online (2001).

1. Terlingua Creek is formed by the confluence of Paradise and Hackberry draws in western Brewster County (29°54'N, 103°47'W). The creek runs southeast to its confluence with the Rio Grande in Big Bend National Park (29°10'N, 103°37'W).
2. Alamito Creek arises in Presidio County (29°31'N, 104°17'W) and confluences with the Rio Grande (30°54'N, 104°08'W) about 50 river-miles above the confluence with Terlingua Creek. Cienega Creek is a tributary to Alamito Creek that crosses Big Bend State Park.
3. Tornillo Creek runs from two miles north of the Big Bend National Park boundary in south central Brewster County (29°26' N, 103°25' W) for about forty-five miles to its mouth on the Rio Grande, in Big Bend National Park two miles southwest of Boquillas (at 29°11' N, 103°00' W).

Other potential localities occur throughout Brewster and Presidio counties. For example, Fresno Creek is perennial for about three miles within Big Bend National Park about 11 miles above its confluence with the Rio Grande (Handbook of Texas Online, 2001), although it is unknown if this perennial section contains fishes (Kevin Urbanczyk, pers. comm.). Cibolo Creek, which runs through Presidio, Texas, was found to harbor *C. ornatum* approximately 20 years ago (Bestgen and Platania 1988) and it is unknown if this population persists. Capote Creek is a tributary with perennial, spring-fed flow (Brune 1981) that confluences with the Rio Grande near Candelaria, Texas (Presidio County). Hubbs et al. (1977) did not find either species in the creek, but potential habitat is present and 30 years have now passed. Several references (Hubbs et al. 1977, Brune 1981, Bestgen and Platania 1988) provide additional localities that might contain populations of these two species.

**Project Personnel:**

Christopher M. Taylor  
Associate Professor  
Department of Natural Resources Management  
Texas Tech University  
Box 42125  
Lubbock, TX 79409-2125

Phone: 806-742-1983  
Fax: 806-742-2280  
Email: [cm.taylor@ttu.edu](mailto:cm.taylor@ttu.edu)



**BUDGET:**

Description	Federal	Match	Total
<b>Year 1</b>			
<b>Personnel</b>			
1 M.S. graduate student – one year salary	13,800		13,800
1 undergraduate technician – 16 days @ \$80/day	1,280		1,280
1/2 month of P.I.s 9-mo. salary		3,778	3,778
<b>Fringe</b>			
P.I. – 20%		756	756
M.S. graduate student – 1% + 301/mo.	3,750		3,750
Undergraduated technician – 1%	13		13
<b>Tuition</b>			
1 year @ \$6258/year	6,258		6,258
<b>Travel</b>			
Motel - \$85/night x 12 nights	1,020		1,020
Vehicle - \$.485/mile x1400mi/trip x 4 trips	2,716		2,716
Per diem -\$36/day x 16 days x 3 people	1,728		1,728
<b>Supplies</b>			
jars (field and storage), alcohol, formalin	800		800
seines	500		
general field and laboratory supplies	500		500
1 Magellan GPS unit	500		500
1 laser rangefinder	300		300
<b>Contractual</b>			
Service (vehicle, balances, misc.)	1,000		1,000
<b>Indirect costs</b>			
<b>Total direct costs</b>	34,165	4,533	38,698
<b>Modified total direct costs</b>	27,907	4,533	32,440
<b>Indirect costs 15%</b>	5,125	680	5,805
<b>Unrecovered indirect costs</b>		7,852	
<b>Total (year 1)</b>	39,290	13,065	52,355

Description	Federal	Match	Total
-------------	---------	-------	-------

<b>Year 2</b>			
<b>Personnel</b>			
1 M.S. graduate student – one year salary	14,214		14,214
1 undergraduate technician – 16 days @ \$80/day	1,318		1,318
1/2 month of P.I.s 9-mo. salary		3,778	3,778
<b>Fringe</b>			
P.I. – 20%		756	756
M.S. graduate student – 1% + 301/mo.	4,114		4,114
Undergraduated technician – 1%	13		13
<b>Tuition</b>			
1 year @ \$6258/year	6,571		6,571
<b>Travel</b>			
Motel - \$85/night x 12 nights	1,020		1,020
Vehicle - \$.485/mile x1400mi/trip x 4 trips	2,716		2,716
Per diem -\$36/day x 16 days x 3 people	1,728		1,728
Conference to present results – 2 people (includes registration and all travel costs)	2,000		2,000
<b>Contractual</b>			
Service (vehicle, balances, misc.)	1,000		1,000
<b>Total direct costs</b>	34,695	4,533	39,228
<b>Modified total direct costs</b>	28,124	4,533	32,657
<b>Indirect costs 15%</b>	5,204	680	5,884
<b>Unrecovered indirect costs</b>		7,874	
<b>Total (year 2)</b>	39,899	13,087	52,986
<b>TOTAL COSTS</b>	<b>79,188</b>	<b>26,153</b>	<b>105,341</b>
<b>Percentages</b>	75%	25%	100%

## Literature Cited:

- Bestgen, K.R. and S.P. Platania. 1988. The Ichthyofauna and Aquatic Habitats of the Rio Grande from the New Mexico-Texas border to Big Bend National Park. Final Report to the U.S. Fish and Wildlife Service, Office of Endangered Species, Albuquerque, New Mexico. 55 pp.
- Brune, Gunnar. Springs of Texas. Texas A&M University Press. Volume I. 566 pp.
- Burr, B. M. and R. L. Mayden. 1981. Systematics, distribution and life history notes on *Notropis chihuahua* (Pisces: Cyprinidae). Copeia 1981: 255-265.
- Comisión Nacional para el Conocimiento y Uso de la Biodiversidad (CONABIO). 1997. Oficio No. DOO.750,-1415/97), la revision de la NOM-ECOL-059-1994, Norma Oficial Mexicana NOMEOL-059-1994, que determina las especies y subespecies de flora y fauna silvestres terrestres y acuaticas en peligro de extincion, amnazadas raras y las sujetas a proteccion especial y quetabrece especificaciones para su proteccion, Publicada en el D.O.F. de fecha 16 de mayo de 1994.
- Edwards, R. J., Garrett, G. P., and E. Marsh-Matthews. 2002. Conservation and status of the fish communities inhabiting the Rio Conchos basin and middle Rio Grande, Mexico and U.S.A.
- Handbook of Texas Online, <http://www.tsha.utexas.edu/handbook/online/>
- Hubbs, C. 1990. Declining fishes of the Chihuahuan Desert. In: Third symposium on resources of the Chihuahuan Desert, United States and Mexico. Chihuahuan Desert Res. Inst., Alpine, TX, pp. 89-96. 191 pp.
- Hubbs, C. and Echelle, A.A. (1973) Endangered non-game fishes in the Upper Rio Grande Basin. In: Huey, W.C. (ed.), Endangered Vertebrates in the Southwest. New Mexico Department of Game and Fish, pp. 147-167.
- Hubbs, C., Edwards, R.J. and Garrett, G.P. 1991. An annotated checklist of the freshwater fishes of Texas, with keys to identification of species. Texas J. Sci., Suppl. 43, 1-56.
- Hubbs, C., R.R. Miller, R.J. Edwards, K.W. Thompson, E. Marsh, G. Garrett, G.L. Powell, D.J. Morris, R.W. Zerr. 1977. Fishes inhabiting the Rio Grande, Texas and Mexico, between El Paso and the Pecos Confluence. In: Importance, Preservation, and Management of Riparian Habitat. USDA Forest Service General Technical Report RM-43.
- Hubb, C. and R. Wauer. 1973. Seasonal changes in the fish fauna of Tornillo Creek, Brewster County, Texas. Southwestern Naturalist 17:375-379.
- Miller, R.R. (1972) Threatened freshwater fishes of the United States. Trans. Am. Fish. Soc. 101, 239-252.
- Platania, S.P. 1990. The ichthyofauna of the Rio Grande drainage, Texas and Mexico, from Boquillas to San Ygnacio. Final Report to the U.S. Fish and Wildlife Service, Office of Endangered Species, Albuquerque, New Mexico.
- Poff N.L., Allan J.D., Bain M.B., Karr J.R., Prestegard K.L., Richter B.D., Sparks R.E., & Stromberg J.C. 1997. The natural flow regime: a paradigm for river conservation and restoration. BioScience 47: 769-784.
- Taylor, C.M. 1997. Fish species richness and incidence patterns in isolated and connected stream pools: effects of pool volume and spatial position. Oecologia 110:560-566.
- Texas Center for Policy Studies. 2002. Texas Environmental Almanac. U.T. Press, Austin.
- Texas Organization for Endangered Species (T.O.E.S.). 1988. Endangered, threatened, and watchlist of vertebrates of Texas. T.O.E.S. Publ. 6, 1-16.

Williams, J.E., Johnson, J.E., Hendrickson, D.A., Contreras-Balderas, S., Williams, J.D., Navarro-Mendoza, M., McAllister, D.E. and Deacon, J.E. (1989) Fishes of North America endangered, threatened or of special concern: 1989. Fisheries 14, 2-20.

U.S. Department of the Interior

**Certifications Regarding Debarment, Suspension and  
Other Responsibility Matters, Drug-Free Workplace  
Requirements and Lobbying**

Persons signing this form should refer to the regulations referenced below for complete instructions:

Certification Regarding Debarment, Suspension, and Other Responsibility Matters - Primary Covered Transactions - **The prospective primary participant further agrees by submitting this proposal that it will include the clause titled, "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction," provided by the department or agency entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.** See below for language to be used or use this form certification and sign. (See Appendix A of Subpart D of 43 CFR Part 12.)

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions - (See Appendix B of Subpart D of 43 CFR Part 12.)

Certification Regarding Drug-Free Workplace Requirements - Alternate I. (Grantees Other Than Individuals) and Alternate II. (Grantees Who are Individuals) - (See Appendix C of Subpart D of 43 CFR Part 12)

Signature on this form provides for compliance with certification requirements under 43 CFR Parts 12 and 18. The certifications shall be treated as a material representation of fact upon which reliance will be placed when the Department of the Interior determines to award the covered transaction, grant, cooperative agreement or loan.

**PART A: Certification Regarding Debarment, Suspension, and Other Responsibility Matters-  
Primary Covered Transactions**

CHECK ☒ IF THIS CERTIFICATION IS FOR A PRIMARY COVERED TRANSACTION AND IS APPLICABLE.

- (1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:
  - (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded by any Federal department or agency;
  - (b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
  - (c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and
  - (d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.
- (2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

**PART B: Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion -  
Lower Tier Covered Transactions**

CHECK ☐ IF THIS CERTIFICATION IS FOR A LOWER TIER COVERED TRANSACTION AND IS APPLICABLE.

- (1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
- (2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

---

**PART C: Certification Regarding Drug-Free Workplace Requirements**

---

CHECK ☒ IF THIS CERTIFICATION IS FOR AN APPLICANT WHO IS NOT AN INDIVIDUAL.

Alternate I. (Grantees Other Than Individuals)

A. The grantee certifies that it will or continue to provide a drug-free workplace by:

- (a) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the grantee's workplace and specifying the actions that will be taken against employees for violation of such prohibition;
- (b) Establishing an ongoing drug-free awareness program to inform employees about--
  - (1) The dangers of drug abuse in the workplace;
  - (2) The grantee's policy of maintaining a drug-free workplace;
  - (3) Any available drug counseling, rehabilitation, and employee assistance programs; and
  - (4) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;
- (c) Making it a requirement that each employee to be engaged in the performance of the grant be given a copy of the statement required by paragraph (a);
- (d) Notifying the employee in the statement required by paragraph (a) that, as a condition of employment under the grant, the employee will --
  - (1) Abide by the terms of the statement; and
  - (2) Notify the employer in writing of his or her conviction for a violation of a criminal drug statute occurring in the workplace no later than five calendar days after such conviction;
- (e) Notifying the agency in writing, within ten calendar days after receiving notice under subparagraph (d)(2) from an employee or otherwise receiving actual notice of such conviction. Employers of convicted employees must provide notice, including position title, to every grant officer on whose grant activity the convicted employee was working, unless the Federal agency has designated a central point for the receipt of such notices. Notice shall include the identification number(s) of each affected grant;
- (f) Taking one of the following actions, within 30 calendar days of receiving notice under subparagraph (d)(2), with respect to any employee who is so convicted --
  - (1) Taking appropriate personnel action against such an employee, up to and including termination, consistent with the requirements of the Rehabilitation Act of 1973, as amended; or
  - (2) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency;
- (g) Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraphs (a) (b), (c), (d), (e) and (f).

B. The grantee may insert in the space provided below the site(s) for the performance of work done in connection with the specific grant:

Place of Performance (Street address, city, county, state, zip code)

Rio Grand River, Presidio and Brewster Counties, TX;  
Texas Tech University Campus, Lubbock, TX 79409

Check ☐ if there are workplaces on files that are not identified here.

---

**PART D: Certification Regarding Drug-Free Workplace Requirements**

---

CHECK ☐ IF THIS CERTIFICATION IS FOR AN APPLICANT WHO IS AN INDIVIDUAL.

Alternate II. (Grantees Who Are Individuals)

- (a) The grantee certifies that, as a condition of the grant, he or she will not engage in the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance in conducting any activity with the grant;
- (b) If convicted of a criminal drug offense resulting from a violation occurring during the conduct of any grant activity, he or she will report the conviction, in writing, within 10 calendar days of the conviction, to the grant officer or other designee, unless the Federal agency designates a central point for the receipt of such notices. When notice is made to such a central point, it shall include the identification number(s) of each affected grant.

**PART E: Certification Regarding Lobbying**  
**Certification for Contracts, Grants, Loans, and Cooperative Agreements**

CHECK ☐ IF CERTIFICATION IS FOR THE AWARD OF ANY OF THE FOLLOWING AND  
THE AMOUNT EXCEEDS \$100,000: A FEDERAL GRANT OR COOPERATIVE AGREEMENT;  
SUBCONTRACT, OR SUBGRANT UNDER THE GRANT OR COOPERATIVE AGREEMENT.


CHECK ☐ IF CERTIFICATION FOR THE AWARD OF A FEDERAL  
LOAN EXCEEDING THE AMOUNT OF \$150,000, OR A SUBGRANT OR  
SUBCONTRACT EXCEEDING \$100,000, UNDER THE LOAN.

The undersigned certifies, to the best of his or her knowledge and belief, that:

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, and officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

As the authorized certifying official, I hereby certify that the above specified certifications are true.

  
SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL

Kathleen Harris, Senior Associate Vice President for Research

TYPED NAME AND TITLE

DATE

12/9/2004

**ASSURANCES - NON-CONSTRUCTION PROGRAMS**

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0040), Washington, DC 20503.

**PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.**

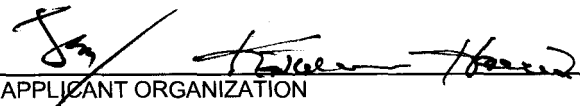
**NOTE:** Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the awarding agency. Further, certain Federal awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant, I certify that the applicant:

1. Has the legal authority to apply for Federal assistance and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project cost) to ensure proper planning, management and completion of the project described in this application.
2. Will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the award; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.
3. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.
4. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.
5. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards for merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
6. Will comply with all Federal statutes relating to nondiscrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee-3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and, (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.
7. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal or federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.
8. Will comply, as applicable, with provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.



9. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333), regarding labor standards for federally-assisted construction subagreements.
10. Will comply, if applicable, with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
11. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).
12. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.
13. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq.).
14. Will comply with P.L. 93-348 regarding the protection of human subjects involved in research, development, and related activities supported by this award of assistance.
15. Will comply with the Laboratory Animal Welfare Act of 1966 (P.L. 89-544, as amended, 7 U.S.C. §§2131 et seq.) pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by this award of assistance.
16. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.
17. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."
18. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL		TITLE	
		Senior Associate Vice President for Research	
APPLICANT ORGANIZATION		DATE SUBMITTED	
Texas Tech University		12/9/2008	