through reduction of nonindigenous species and by reestablishment of new populations and other recovery actions. There are multiple actions that have been completed and are being planned that will help recover the loach minnow (Appendix 4).

12) The PCE for designated critical habitat for Gila chub, spikedace, loach minnow, and razorback sucker that calls for areas free of nonindigenous species will be negatively affected by the proposed action, at least for an interim period. There will also be direct and indirect adverse effects from barrier construction that will be temporary. The various proposed conservation measures will minimize the impacts of nonindigenous species whose movement is facilitated by CAP-associated facilities. However, there will be an interim period of negative effects. The long-term effects to critical habitat for those species should be beneficial, through construction of barriers and management against nonindigenous species.

13) The other PCEs for the four species should only have minor impacts from the proposed action, most of which will be minimized by the proposed conservation measures.

We assume that the proposed action, including all interrelated and interdependent and cumulative effects will be similar to what is described in the biological assessment (USBR 2006) and in this biological opinion.

INCIDENTAL TAKE STATEMENT

Sections 4(d) and 9 of the Endangered Species Act, as amended, prohibit taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without a special exemption. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. "Harass" is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns that include, but are not limited to, breeding, feeding or sheltering. Incidental take is any take of listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or the applicant. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered a prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are non-discretionary, and must be implemented by the agency so that they become binding conditions of any grant or permit issued to, or agreement entered into, with the applicants, as appropriate, for the exemption in section 7(o)(2) to apply. In regard to portions of this statement applicable to the applicants, Reclamation has a continuing duty to regulate the activity covered by this incidental take statement. If Reclamation (1) fails to require the applicants to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

Amount or extent of take

Take is anticipated and reasonably certain to occur through direct mortality to adult, juvenile, and larval fish and their eggs (except for Gila topminnow which is a livebearer), and adult, juvenile, and metamorph Chiricahua leopard frogs and their eggs due to predation and harassment by nonindigenous aquatic species introduced or spread via CAP; through introduction of nonindigenous parasites and disease organisms; as a result of construction and maintenance of fish barriers; and as a result of O&M of CAP aqueducts and pumping plants. Razorback sucker that are entrained at the pumping station on the Colorado River are already considered "taken," under the biological opinion for the Lower Colorado Multiple Species Conservation Plan. Razorback suckers that enter the CAP through another avenue may be subject to take through CAP-mediated activities, and are covered under this incidental take statement. We anticipate that any fish or frogs or their eggs or larvae in the construction area of the fish barriers will be killed when crushed by equipment, stranded during flow diversion, exposed to toxic materials such as petroleum products and concrete leachates, or smothered by sediment input.

Take of adult, juvenile, and larval fish and eggs, and adult, juvenile, metamorph, larvae and eggs of frogs may occur in the form of harm from competition for food or habitat by the introduction of nonindigenous aquatic species caused by CAP activities. This take will occur through decreased health, shorter life spans, decreased reproduction, increased loss from predation, and other impairments of breeding, feeding, and sheltering. Take may also occur from habitat or community alteration by CAP-introduced or spread nonindigenous aquatic species, thus disrupting and impairing breeding, feeding, and sheltering.

The anticipated amount of take from nonindigenous species cannot be directly quantified. Take will be highly variable over time and space, ranging from a few listed fish or frogs per year up to, and including, entire populations of each species. Only a portion of the nonindigenous species that may invade can be identified at this time, and the timing of the invasions during the 100-year project duration is unpredictable. In addition, population levels of the listed fish and frogs cannot be accurately described with existing information, and techniques and for the shorter-lived species may vary substantially from year to year and season to season. Individuals consumed by predation cannot be detected, individuals dead from incidental take are difficult to find, and the cause of their death may be difficult to determine. Losses in populations may be masked by fluctuations in numbers that are natural or caused by other factors. However, we anticipate that the amount of take that may occur will be minimized by implementation of the terms and conditions below, as well as the extensive conservation measures proposed by Reclamation.

Regulations at 50 CFR §402.16 require reinitiation of consultation for any of the following reasons: (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 opinion; (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 opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action.

Quantifying take is not scientifically defensible or is extraordinarily difficult for the reasons specified above. We therefore propose to base reinitiation of consultation for exceedance of incidental take on whether extirpation of important populations or significant population declines of the listed species occur as a result of CAP-mediated activities. Such changes in populations of the listed species will be determined through monitoring, and we believe that this monitoring and any reinitiation would allow us to assist Reclamation in avoiding jeopardy to these species. We believe this is a scientifically defensible mechanism to avoid violation of ESA Section 7(a)(2).

During fish barrier construction, take may also occur due to destruction or alteration of habitat resulting from modification or destabilization of the substrate, channel, streambanks, and riparian vegetation. Reclamation will make efforts to site barriers in locations where impacts to the native fish population will be minimized. Nevertheless, and such habitat loss would alter behavioral patterns, food availability, access to cover, and availability of habitat, thus reducing survival of individual fish and frogs and potentially reducing or precluding reproduction. The anticipated level of take from barrier construction is also difficult to determine because the specific locations of some of the barriers are currently unknown, and because of the technical difficulties in determining population numbers and mortalities, difficulties in detecting dead or dying individuals, natural population fluctuations, and confounding natural and human-caused factors. The species that may be taken will vary from barrier to barrier. Therefore, anticipated take of these species is indexed to the total aquatic community and habitat for barrier construction. Anticipated take for spikedace, loach minnow, Gila topminnow, razorback sucker, Chiricahua leopard frog, and Gila chub will be considered to have been exceeded if any of the following conditions occur:

1. If at any time during the life of the project, nonindigenous species of concern are determined by FWS and BR, in consultation with the CAP Technical and Policy Committees, to have come from the CAP or through CAP associated pathways, and caused the extirpation of populations at occupied sites listed below. The nonindigenous species of concern are those that are predators of or competitors with the six species, or those that disrupt the functioning of aquatic systems where these species occur.

    1.1. For Gila topminnow, any one level 2 population (as defined by the 1999 draft revised recovery plan); or any three level 3 populations reestablished within any one recovery unit (currently there are four: upper Gila River basin, San Pedro basin, SCR basin, and the lower Gila River basin [Service files]). Definitions of the population levels are found in Appendix 5.

    1.2. For spikedace or loach minnow, any single population which has become established through reestablishment efforts.

    1.3. For Gila chub, any population in the Agua Fria, Gila, or San Pedro river basins (as defined in the final rule listing the species, FR 70 66664).

    1.4. For Chiricahua leopard frog, two populations within any one recovery unit identified in the recovery plan (USFWS 2007).

2. If at any time during the life of the project, nonindigenous species of concern are determined by FWS and BR, in consultation with the CAP Technical and Policy Committees, to have come from the CAP or through CAP associated pathways, and caused significant declines to the listed species. A significant decline could be a decline across the species' range or it may be a significant decline in one very important population (e.g., Aravaipa spikedace). A significant decline may be one that makes the conservation and recovery of that species in doubt, or that could lead to the change in species' status from threatened to endangered. The nonindigenous species of concern are those that are predators of or competitors with the six species, or those that disrupt the functioning of aquatic systems where these species occur.

3. If at any time during barrier activities (including pre-construction, construction, operation, and maintenance), any one or more of the following conditions occur in areas occupied by the listed species addressed in this BO:

    3.1. More than 25 dead native fish or five dead native ranid frogs or larvae are found in the area of barrier construction activities or within 500 yards (460 meters) downstream. The purpose of this term and condition is to detect and control events that may result in take in the aquatic faunal community, such as a spill of toxic materials. Thus, we will consider the death of any native species of fish or native ranid frogs to indicate an exceedance of anticipated take of the listed species.

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize incidental take that might otherwise result from the proposed action. If, during the course of the action, the level of incidental take is exceeded, such incidental take would represent new information requiring review of the reasonable and prudent measures provided. Reclamation must immediately provide an explanation of the causes of the taking and review with us the need for possible modification of the reasonable and prudent measures.

Effect of the take

In this biological opinion, we determine that the level of anticipated take is not likely to result in jeopardy to spikedace, loach minnow, Gila topminnow, razorback sucker, Gila chub, or Chiricahua leopard frog, or to adversely modify the critical habitat of any of those species with such designations. However, dependent on the overall status and baseline of the listed species, the loss of the following populations may require reinitiation of this Biological Opinion:

- any natural population of Gila topminnow, spikedace, and loach minnow;

- For Chiricahua leopard frog, any of the following populations: upper Cienega Creek; Blue River above the San Francisco River confluence; right and left prongs of Dix Creek; Coal Creek (Apache-Sitgreaves National Forest); Three Forks (Black River); Crouch, Gentry, or Cherry creeks (Tonto National Forest); and Gila River and tributaries in the Gila Wilderness.

- For Gila Chub: any population in the Verde or Santa Cruz drainage basins; any 2 populations in the Agua Fria, Gila, or San Pedro river basins (as defined in the final rule listing the species, FR 70 66664).

Reasonable and prudent measures and terms and conditions

We believe the following reasonable and prudent measures and terms and conditions are necessary and appropriate to minimize the incidental take authorized by this biological opinion. To be exempt from the prohibitions of section 9 of the Act, Reclamation is responsible for compliance with the following terms and conditions, which implement the reasonable and prudent measures. These terms and conditions are nondiscretionary.

1. We believe the conservation measures of the proposed action include all measures necessary and appropriate to minimize take from that portion of the action related to nonindigenous aquatic species predation, disease, competition, harassment, habitat alteration, disease transmission, and hybridization. Reclamation shall ensure that Gila topminnow and the Santa Cruz basin are considered in the allocation of funds used for minimizing the effects of the proposed action.

    1.1. Implementation of the proposed conservation measures will constitute the terms and conditions implementing reasonable and prudent measure 1.

    1.2. A minimum of eight percent each of the nonindigenous species management and recovery funds will be spent on actions in the SCR subbasin, as measured over a 5-year period, beginning with fiscal year 2008. The CAP Policy Committee can approve variances to this term and condition as needed.

    1.3. A minimum of eight percent each of the nonindigenous species management and recovery funds will be spent on actions on the Gila topminnow, as measured over a 5-year period, beginning with fiscal year 2008. The CAP Policy Committee can approve variances to this term and condition as needed.

2. For the take related to implementation of the conservation measures, we provide the following reasonable and prudent measures and terms and conditions. In areas occupied by listed species addressed in this BO:

    2.1. Conduct all proposed actions in a manner that will minimize direct mortality of spikedace, loach minnow, Gila topminnow, razorback sucker, Chiricahua leopard frog, and Gila chub.

        2.1.1 All reasonable efforts will be made to minimize activities within the waters of the streams in which the fish barriers are constructed. This includes pre-construction investigations, barrier construction, and barrier maintenance, but does not include species monitoring, which is covered by a 10(a)(1)(A) permit.

2.1.2 All reasonable efforts will be made to minimize activities in the stream channel during the reproductive season of any of the above six species that are in the action area of any particular barrier. This includes pre-construction and barrier maintenance activities, but does not include species monitoring. We recognize that barrier construction is a lengthy process, and it may not be possible to avoid work during reproduction of all listed species present.

2.1.3 All reasonable efforts shall be made to ensure that pollutants do not enter surface waters during any barrier investigation, construction, or maintenance activities. No toxic chemicals (including petroleum products) shall be stored or deposited within the floodplain. An appropriate spill response kit for cleaning up accidental releases of toxic chemicals will be available at the work site whenever work is ongoing, and at least one person present shall have training in use of that kit.

2.1.4 To the extent practical and applicable, recommended conservation measures in Appendix I of the Chiricahua leopard frog recovery plan will be implemented during barrier construction in areas occupied by the frog.

2.2 Conduct all proposed actions in a manner that will minimize loss and alteration of the habitat (including the aquatic faunal community) of spikedace, loach minnow, Gila topminnow, razorback sucker, Chiricahua leopard frog, and Gila chub.

2.2.1 All reasonable efforts will be made to minimize damage to, or loss of, riparian vegetation in streams where fish barriers are constructed. This includes pre-construction investigations, barrier construction, and barrier maintenance.

2.2.2 Whenever barrier pre-construction investigations, construction, or maintenance are conducted in previously unroaded areas or areas closed to vehicular use, all reasonable efforts will be made to obliterate roads, vehicle tracks, or other signs of activity that would encourage non-authorized people to drive in or enter the area. This will be done after each substantially segregated activity, such as between pre-construction activities and construction or between maintenance activities. A road constructed or improved for barrier installation can be kept open for maintenance, if Reclamation, the Service, and the land management entity agree that this is appropriate.

2.2.3 All reasonable efforts will be made to minimize channel and floodplain alterations during barrier pre-construction, construction, and maintenance activities.

2.3 Monitor the fish and frog communities and habitat to document levels of incidental take.

2.3.1 At all times when barrier pre-construction, construction, operation, or maintenance activities are ongoing, reasonable efforts shall be maintained to

monitor for the presence of dead or dying fish and ranid frogs in, or within 500 yards (460 meters) downstream of, the project area. The Service shall be notified immediately, by telephone, upon detection of more than 25 dead or dying fish and five (5) ranid frogs of any species. Operations must be stopped between the detection, determination, and resolution of the cause of the mortalities.

2.3.2 A qualified aquatic biologist shall be available to advise and assist in application of these terms and conditions. The biologist does not need to be on-site during all project activities, but must provide training to on-site personnel in how to implement the terms and conditions.

2.4 Maintain complete and accurate records of actions that resulted in take of spikedace, loach minnow, Gila topminnow, razorback sucker, Chiricahua leopard frog, and Gila chub.

2.4.1. A written report shall be submitted to us annually documenting noteworthy CAP activities for the year, any incidental take, and implementation of the conservation measures. The report will include a discussion of compliance with the above terms and conditions.

Disposition of dead or injured listed animals

Upon locating a dead or injured threatened or endangered animal, initial notification must be made to the Service's Division of Law Enforcement, Federal Building, Room 8, 26 North McDonald, Mesa, Arizona (480-835-8289) within three working days of its finding. Written notification must be made within five calendar days and include the date, time, and location of the animal, a photograph, and any other pertinent information. Care must be taken in handling injured animals to ensure effective treatment and care, and in handling dead specimens to preserve biological material in the best possible condition. If feasible, the remains of intact specimens of listed animal species shall be submitted to educational or research institutions holding appropriate State and Federal permits. If such institutions are not available, the information noted above shall be obtained and the carcass left in place.

Arrangements regarding proper disposition of potential museum specimens shall be made with the institution before implementation of the action. Injured animals should be transported to a qualified veterinarian by a qualified biologist. Should any treated listed animal survive, the Service should be contacted regarding the final disposition of the animal.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Endangered Species 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. The term conservation recommendations has been defined as Service suggestions regarding discretionary activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of

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

The Service recommends the following conservation recommendations be considered for implementation by Reclamation.

1. Construct additional (to the conservation measures) physical drop structure barriers to upstream fish movement, such as at the following locations:

East Fork White River
Babocomari River, above Huachuca City
Hassayampa River, between the CAP aqueduct and The Nature Conservancy preserve
Agua Fria River, above Lake Pleasant
Mangus Creek
Blue Creek
Tularosa River
Upper San Francisco River
West Fork Gila River
Diamond Creek

2. Unless they are shown at some future date to be needed for the recovery and survival of native fish, and if the actions are not at odds with national wetlands policy, encourage annual dryup of all canals, ditches, siphons, sumps, and other water storage and conveyance features of the CAP and all entities receiving CAP water. This does not include the CAP aqueduct itself, Picacho Reservoir, any reservoirs located on natural stream systems, or any natural rivers or streams. For those and any other open water features which cannot be dried annually, management plans to control nonindigenous aquatic species should be encouraged and assisted. Acceptable alternatives to drying may include modification to avoid flood inundation, or physical barriers to nonindigenous aquatic species movement out of areas which cannot be dried into other portions of the system. The management plans should be mutually acceptable to Reclamation and the Service, in consultation with AGFD and NMDGF (if applicable).

3. Oppose all introductions of any nonindigenous aquatic species not already established in the Colorado River basin, into waters of the basin over which Reclamation has partial or total control. Support efforts to prevent introduction of additional nonindigenous species into the waters of the lower Colorado River basin.

4. Monitor the non-fish nonindigenous aquatic community of the lower Verde and Salt and middle Gila rivers to identify when new species (other than fish, which are already under monitoring) enter the area. Because of the significant effort it would require to monitor for aquatic organisms of all non-fish groups (plants, invertebrates, amphibians, reptiles, mammals) such monitoring could target groups most likely to be introduced via CAP or most likely to result in adverse effects to the six listed species. The groups to be targeted and the protocols for monitoring should be developed in coordination with the Service and AGFD.

REINITIATION NOTICE

This concludes formal consultation on the delivery of CAP water to the Gila River basin and its potential to introduce and spread nonindigenous aquatic species. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (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 opinion; (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 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 reinitiation.

We appreciate the efforts of Reclamation in working with the Service to preserve the native aquatic fauna of the Gila River basin. If we can be of further assistance, please contact Doug Duncan (520) 670-6150 (x236) or Sherry Barrett (520) 670-6150 (x223).

for Steven L. Spangle

Enclosures

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REFERENCES CITED

Abbate, D. 1998. Arizona Game and Fish Department 1997 Sonora tiger salamander surveys. Presentation to the Fourth Annual Meeting of the Southwestern Working Group of the Declining Amphibian Populations Task Force, Phoenix, AZ.

Allison, L. 2000. Power analysis for long-term monitoring of fishes in selected waters of the Gila River basin, Arizona. Final report to U.S. Bureau of Reclamation, Cooperative agreement No. 99-FG-32-0200; Technical Report 170, Arizona Game and Fish Department, Phoenix, AZ. 53pp.

Anderson, R. M. 1978. The distribution and aspects of the life history of *Meda fulgida* in New Mexico. Unpublished M.S. thesis, New Mexico State University, Las Cruces. 62pp.

Anderson, A. A., and D. A. Hendrickson. 1994. Geographic variation in morphology of spikedace, *Meda fulgida*, in Arizona and New Mexico. Southwestern Nat. 39(2):148-155.

Aquatic Nuisance Species Task Force. 1994. Report to Congress: Findings, conclusions, and recommendations of the intentional introductions policy review. 53pp. http://nas.nfrcg/gov/iirpt.htm

Arizona Department of Economic Security. 2001. Population growth since 1990. www.de.state.az.us/links/economic/webpage/popweb

ADWR (Arizona Department of Water Resources). 2006. Available online at: http://www.water.az.gov/recharge/PermittedFacilities.htm.

Arizona Game and Fish Commission. 1995. Live wildlife rules. R12-4-401 to 428. January 1, 1995.

Arizona Game and Fish Department (AGFD). 1993. State of Arizona - Record fish and fish-of-the-year entry form for striped bass from Lake Pleasant Nov. 4, 1993. AGFD, Phoenix, AZ. 2 pp.

___. 1994. Distribution, abundance and habitat survey for loach minnow (*Tiaroga cobitis*) in the Blue River, Arizona. August 1994. Arizona Game and Fish Department, Phoenix. 19pp.

__. 1998. Razorback sucker and Colorado squawfish reintroduction and monitoring in the Verde and Salt Rivers. Annual performance report, Section 6 Project E5-9, Job 36, AGFD, Phoenix. 14pp.

___. 2001. 2001 Fishing Regulations. AGFD. Phoenix, AZ.

Bagley, B. E. 2002. Survey of Verde River drainage, Arizona, for loach minnow (Tiaroga cobitis). Final Report to U.S. Fish and Wildlife Service, Arizona Ecological Services Office, Contract No. 22410-0-M525.

___, D. A. Hendrickson, F. J. Abarca, and S. D. Hart. 1991. Status of the Sonoran topminnow (*Poeciliopsis occidentalis*) and desert pupfish (*Cyprinodon macularius*) in Arizona. Rept. on Proj. E5-2, Job 9, Title VI of the ESA, AGFD, Phoenix. 64pp.

___, G. W. Knowles, and T. C. Inman. 1995. Fisheries survey of the Apache-Sitgreaves National Forests, trip reports 1-9. May 1994 to September 1995, Arizona State University, Tempe, AZ. 50pp.

Baird, S. F., and C. Girard. 1853. Descriptions of new species of fishes collected by Mr. John H. Clark, on the U.S. and Mexican Boundary Survey, under Lt. Col. Jas. D. Graham. Proc. Acad. Nat. Sci. Philadelphia 6:387-390.

Baker, D. L. 2005. Internal coordination with Denise Baker, Assistant Field Supervisor for Environmental Contaminants. Arizona Ecological Service Field Office, USFWS, Phoenix.

___, and C. L. H. Marr. 2003. AZ- endocrine disruption in razorback sucker and common carp on National Wildlife Refuges along the lower Colorado River. Interim Report for Project 1261-2N47, Arizona Ecological Services Office, USFWS, Phoenix. 14pp.

Balon, E. K., S. S. Crawford, and A. Lelek. 1986. Fish communities of the upper Danube River (Germany, Austria) prior to the new Rhein-Main-Donau connection. Environmental Biology of Fishes 15(4):243-271.

Baltz, D. M., and P. B. Moyle. 1993. Invasion resistance to introduced species by a native assemblage of California stream fishes. Ecological Applications 3(2):246-255.

Barber, W. E., and W. L. Minckley. 1966. Fishes of Aravaipa Creek, Graham and Pinal Counties, Arizona. Southwestern Naturalist 11(3):313-324.

___, and ___. 1983. Feeding ecology of a southwestern Cyprinid fish, the spikedace, *Meda fulgida* Girard. The Southwestern Naturalist 28(1):33-40.

___, D. C. Williams, and W. L. Minckley. 1970. Biology of the Gila spikedace, *Meda fulgida*, in Arizona. Copeia 1970(1): 9-18.

Bawden, T. D. 1994. Letter from Superintendent of the groundwater division of Salt River Project to Arizona Game and Fish Dept. Re: grass carp in Salt River Project canals. February 11, 1994, Salt River Project, Phoenix, AZ.

Becker, G. C. 1983. Fishes of Wisconsin. University of Wisconsin Press, Madison, WI.

Behnke, R. J. 1992. Native trout of western North America. American Fisheries Society Monograph 6, Bethesda, MD. 275pp.

Bequaert, J. C., and W. B. Miller. 1973. The mollusks of the arid southwest. Univ. of Arizona Press, Tucson, AZ. 271pp.

Berger L., R. Speare, P. Daszak, D. E. Green, A. A. Cunningham, C. L. Goggins, R. Slocombe, M. A. Ragan, A. D. Hyatt, K. R. McDonald, H. B. Hines, K. R. Lips, G. Marantelli, and H. Parkes. 1998. Chytridiomycosis causes amphibian mortality associated with population declines in the rain forests of Australia and Central America. Proceedings of the National Academy of Science, USA 95:9031-9036.

Bestgen, K. R., G. B. Haines, R. Brunson, T. Chart, M. Trammel, R. T. Muth, G. Birchell, K. Chrisopherson, and J. M. Bundy. 2002. Status of wild razorback sucker in the Green River Basin, Utah and Colorado, determined from basinwide monitoring and other sampling programs. Final Report. Colorado River Recovery Implementation Program Project No. 22D, Larval Fish Laboratory Contribution 126, Colorado State Univ., Fort Collins. 73pp.

___, and D. L. Propst. 1989. Red shiner vs. native fishes: Replacement or displacement? Proc. of the Desert Fishes Council 18:209.

Bettaso, R. H. 2000. October 1999 to January 2000 CAP monitoring summary. Arizona Game and Fish Department, Phoenix, AZ. 40pp.

Bonar, S. A., C. J. Carveth, A. M. Widmer, and J. Simms. 2005. Upper temperature tolerance of loach minnow and spikedace under acute, chronic, and fluctuating thermal regimes. Fisheries research report 04-05, Arizona Cooperative Fish and Wildlife Research Unit, U.S. Geological Survey, University of Arizona, Tucson. 58pp.

___, L. L. Leslie, and C. E. Velez. 2004. Influence of species, size class, environment, and season on introduced fish predation on native fishes in the Verde River system, Arizona. Arizona Cooperative Fish and Wildlife Research Unit, U.S. Geological Survey, University of Arizona, Tucson. 108pp.

Blinn, D. W., and G. A. Cole. 1991. Algal and invertebrate biota in the Colorado River: Comparison of pre- and post-dam conditions. Pages 102-123 *in* Colorado River Ecology and Dam Management, Proc. of a Symposium 24-25 May, 1990, Santa Fe, New Mexico, National Academy Press, Washington, D.C.

Boschung, H. 1987. Physical factors and the distribution and abundance of fishes in the upper Tombigbee River system of Alabama and Mississippi, with emphasis on the Tennessee-Tombigbee Waterway. Pages184-192 *in* Matthews, W. J., and D. C. Heins, eds., Community and Evolutionary Ecology of North American Stream Fishes, University of Oklahoma Press, Norman, OK.

Bowler, P. A. 1989. The rapid spread of the freshwater hydrobiid snail *Potamoprygus antipodarum* (Gray) in the Middle Snake River, southern Idaho. Proc. of the Desert Fishes Council 21:173-182.

Bradley, G. A., P. C. Rosen, M. J. Sredl, T. R. Jones, and J. E. Longcore. 2002. Chytridomycosis in native Arizona frogs. Journal of Wildlife Diseases 38(1):206-212.

Brennan, T. C., and A. T. Holycross. 2006. Amphibians and Reptiles in Arizona. Arizona Game and Fish Department, Phoenix.

Britt, K. D., Jr. 1982. The reproductive biology and aspects of life history of *Tiaroga cobitis* in southwestern New Mexico. Unpublished M.S. thesis, New Mexico State University, Las Cruces. 56pp.

Brooks, J. E. 1986. Status of natural and introduced Sonoran topminnow (*Poeciliopsis o. occidentalis*) populations in Arizona through 1985. U.S. Fish and Wildlife Service, Albuquerque, New Mexico. 19+pp.

Brown, D. P., and A. C. Comrie. 2004. A winter precipitation 'dipole' in the western United States associated with multidecadal ENSO variability. Geophysical Research Letters 31.

Brown, D. J., and T. G. Coon. 1991. Grass carp larvae in the lower Missouri River and its tributaries. North American J. Fisheries Management 11:62-66.

Brown, T. J., B. L. Hall, and A. L. Westerling. 2004. The impact of twenty-first century climate change on wildlife fire danger in the western United States: An applications perspective. Climatic Change 62:365-388.

Burr, B.M. and R.L. Mayden. 1980. Dispersal of rainbow smelt, *Osmerus mordax*, into the upper Mississippi River (Pisces:Osmeridae). American Midland Nat. 104(1):198-201.

Carlson, C. A., and R. Muth. 1989. The Colorado River: Lifeline of the American southwest. Pages 220-239 *in* Dodge, D. P., ed., Proc. of the International Large River Symposium. Canadian Special Publication of Fisheries and Aquatic Sciences 106.

Central Arizona Water Conservation District. 1995. Report to the Secretary, U.S. Dept. of the Interior on the U.S. Fish and Wildlife Service final biological opinion on the transportation and delivery of Central Arizona Project water to the Gila River basin. May 1995. CAWCD, Phoenix, AZ. 57pp.

___. 2001. Letter to U.S. Fish and Wildlife Service re: stocking of grass carp in the Central Arizona Project aqueduct. March 1, 2001. 3pp.

Chamberlain, F. M. 1904. Notes on work in Arizona. Unpublished manuscript in files of U.S. Bureau of Fisheries, Dept. Of Commerce and Labor, National Archives, U.S. National Museum, Washington, D.C. 19pp.

Chickering, A. M. 1930. An Atlantic pipefish caught in transit through the Panama Canal. Copeia 1930(173):85-86.

Clarkson, R. W. 1996. Long-term monitoring plan for fish populations in selected waters of the Gila River basin, Arizona. Revision No. 2. Report to U.S. Fish and Wildlife Service and Arizona Game and Fish Department, U.S. Bureau of Reclamation, Phoenix, AZ.

___. 1998. Results of fish monitoring of selected waters of the Gila River basin, 1995-1996. U.S. Bureau of Reclamation, Phoenix, AZ. 30pp.

___. 1999. Results of fish monitoring of selected waters of the Gila River basin, 1997. U.S. Bureau of Reclamation, Phoenix, AZ. 14pp.

___. 2001. Results of fish monitoring of selected waters of the Gila River basin, 1999. U.S. Bureau of Reclamation, Phoenix, AZ. 16pp.

___. 2004. Effectiveness of electrical fish barriers associated with the Central Arizona Project. N. Am. J. of Fisheries Management 24:94-105.

___, and J. C. DeVos, Jr. 1986. The bullfrog, *Rana catesbeiana* Shaw, in the lower Colorado River, Arizona-California. Journal of Herpetology 20(1):42-29.

___, P. C. Marsh, S. E. Stefferud, J. A. Stefferud. 2005. Conflicts between native fish and nonnative sport fish management in the southwestern United States. Fisheries 30(9):20-27.

___, A. T. Robinson, and T. L. Hoffnagle. 1997. Asian tapeworm (*Bothriocephalus acheilognathi*) in native fishes from the Little Colorado River, Grand Canyon, Arizona. Great Basin Naturalist 57(1):66-69.

___, and J. C. Rorabaugh. 1989. Status of leopard frogs (*Rana pipiens* Complex) in Arizona and southeastern California. Southwestern Naturalist 34(4):531-538.

Claudi, R., and J. H. Leach. 2000. Nonindigenous freshwater organisms. Vectors, Biology, and Impacts, Lewis Publishers, Boca Raton, Florida. 464pp.

Coblentz, B. 1990. Exotic organisms: A dilemma for conservation biology. Conservation Biology 4(3):261-265.

Cohen, A. N., and J. T. Carlton. 1995. Nonindigenous aquatic species in a United States estuary: A case study of the biological invasions of the San Francisco Bay and Delta. U.S. Fish and Wildlife Service, Washington, D.C. Http://nas.nfrcg.gov/sfinvade.htm

Collins, J. P. 1981. Distribution, habitats, and life history variation in the tiger salamander, *Ambystoma tigrinum*, in east-central and southeast Arizona. Copeia 1981:666-675.

___. 1996. Final report: A status survey of three species of endangered/sensitive amphibians in Arizona. Report to Arizona Game and Fish Department, Heritage Fund - IIPAM #I92014, Phoenix, AZ.

___, J. L. Brunner, V. Miera, M. J. Parris, D. M. Schock, and A. Storfer. 2003. Ecology and evolution of infectious disease. Pages 137-151 *in* Semlitsch, R. D., ed., Amphibian Conservation, Smithsonian Books, Washington D.C.

_____, E. W. Davidson, J. E. Longcore, A. P. Pessier, M. J. Perris, and A. T. Storfer. 2001. Viral and fungal pathogens in tiger salamanders in the Western United States and Canada. Pages 20-21 *in* Abstracts of the Annual Conference of The Western Section of The Wildlife Society, Sacramento, California, 22-24 February 2001.

___, and T. R. Jones. 1987. Report on the status of the Sonora tiger salamander, *Ambystoma tigrinum stebbinsi* Lowe. Department of Zoology, Arizona State University, Tempe, Arizona. 66pp.

___, ___, and H. J. Berna. 1988. Conserving genetically distinctive populations: the case of the Huachuca tiger salamander (*Ambystoma tigrinum stebbinsi* Lowe). Pages 45-53 *in* Szaro, R. C., K. E. Severson, and D. R. Patton, tech. coords., Management of Amphibians, Reptiles and Small Mammals in North America, General Technical Report RM-166, Rocky Mtn. For. & Range Experiment Station, USDA Forest Service, Ft. Collins, Colorado.

Courtenay, W. R., Jr. 1989. Exotic fishes in the National Park system. Pages 237-252 *in* Thomas, L.K., ed., Proceedings of the 1986 Conference on Science in the National Parks, volume 5, Management of Exotic Species in Natural Communities, U.S. National Park Service and George Wright Society, Washington, D.C.

___. 1995. The case for caution with fish introductions. American Fisheries Society Symposium 15:413-424.

___, and G. K. Meffe. 1989. Small fishes in strange places: A review of introduced poeciliids. Pages 319-331 *in* Meffe, G. K., and F. F. Snelson, Jr., eds., Ecology and Evolution of Livebearing Fishes (Poeciliidae), Prentice Hall, Englewood Cliffs, New Jersey. 453pp.

___, and J. R. Stauffer, Jr. 1984. Distribution, biology, and management of exotic fishes. Johns Hopkins University Press, Baltimore, Maryland. 430pp.

Dahlberg, M. 2000. The green monster in our waters. Arizona Game and Fish Department, Wildlife Views July-August 2000:27.

David, R. E. 1998. Native trout of the San Francisco River system, New Mexico and Arizona, a position paper of the Gila Trout Recovery Team. Unpublished report, U.S. Fish and Wildlife Service, Albuquerque, New Mexico.

Davidson, E. W., M. Parris, J. P. Collins, J. E. Longcore, A. P. Pessier, and J. Brunner. 2003. Pathogenicity and transmission of chytridiomycosis in tiger salamanders (*Ambystoma tigrinum*). Copeia 2003(3):601-607.

___, A. P. Pessier, J. E. Longcore, M. Perris, J. Jancovich, D. Schock, and J. P. Collins. 2000. Chytridiomycosis in Arizona (USA) tiger salamanders. Abstract for Scientific Conference - Getting the Jump! On Amphibian Diseases, Cairns, Australia, 26-30 August 2000.

Davies, B. R., M. Thoms, and M. Meador. 1992. An assessment of the ecological impacts of inter-basin water transfers, and their threats to river basin integrity and conservation. Aquatic Conservation: Marine and Freshwater Ecosystems 2:325-349.

Davis, G. P., Jr. 1982. Man and wildlife in Arizona: The American exploration period 1824-1865. Carmony, N. B., and D. E. Brown, eds., Arizona Game and Fish Dept. and Arizona Coop. Wildlife Research Unit, Somers Graphics, Inc., Scottsdale. 232pp.

___. 1986. Man and Wildlife in Arizona: The American exploration period 1824-1865, 2nd ed. Carmony, N. B., and D. E. Brown, eds., Arizona Game and Fish Department, Phoenix.

Deacon, J. E., C. Hubbs, and B. J. Zahuranec. 1964. Some effects of introduced fishes on the native fish fauna of southern Nevada. Copeia 1964(2):384-388.

___, and C. D. Williams. 1991. Ash Meadows and the legacy of the Devils Hole pupfish. Pages 69-87 *in* Minckley, W. L., and J. E. Deacon, eds., Battle Against Extinction; Native Fish Management in the American West, University of Arizona Press, Tucson.

Dean, S. A. 1987. The Sonoran topminnow (*Poeciliopsis occidentalis*) and the mosquitofish (*Gambusia affinis*): a test of emigratory behavior. MS thesis, University of Arizona, Tucson, AZ. 36pp.

Degenhardt, W. G., C. W. Painter, and A. H. Price. 1996. Amphibians and reptiles of New Mexico. University of New Mexico Press, Albuquerque.

DeMarais, B. D. 1986. Morphological variation in *Gila* (Pisces, Cyprinidae) and geologic history: Lower Colorado River Basin. Unpublished M.S. thesis, Arizona State University, Tempe, Arizona.

___, T. E. Dowling, and W. L. Minckley. 1993. Post-perturbation genetic changes in populations of endangered Virgin River chubs. Conservation Biology 7(2):334-341.

Desert Fishes Team. 2003. Status of federal- and state-listed fishes of the gila river basin, with recommendations for management. Desert Fishes Team Report Number 1, Desert Fishes Team, Phoenix, Arizona.

___. 2006. Analysis of recovery plan implementation for threatened and endangered warm water fishes of the Gila River basin. Desert Fishes Team Report 3, Desert Fishes Team, Phoenix.

Dill, W. A., and A. J. Cordone. 1997. History and status of introduced fishes in California, 1871-1996. California Department of Fish and Game, Fish Bulletin 178. 414pp.

Douglas, M. E., P. C. Marsh, and W. L. Minckley. 1994. Indigenous fishes of western North America and the hypothesis of competitive displacement: *Meda fulgida* (Cyprinidae) as a case study. Copeia 1994(1):9-19.

Dowling, T. E., and M. R. Childs. 1992. Impact of hybridization on a threatened trout of the southwestern United States. Conservation Biology 6(3):355-364.

Dudley, R. K., and W. J. Matter. 2000. Effects of small green sunfish (*Lepomis cyanella*) on recruitment of Gila chub (*Gila intermedia*) in Sabino Creek, Arizona. Southwestern Naturalist 45(1):24-29.

Dunsmoor, L. 1995. Predation by planarian flatworms and fathead minnow on embryos and larvae of endangered suckers in Oregon. Proceedings of the Desert Fishes Council 27:35.

Echelle, A. A., and A. F. Echelle. 1997. Genetic introgression of endemic taxa by non-natives: a case study with Leon Springs pupfish and sheepshead minnow. Conservation Biology 11(1):153-161.

___, R. A. Van Den Bussche, T. P. Malloy, Jr., M. L. Haynie, and C. O. Minckley. 2000. Mitochondrial DNA variation in pupfishes assigned to the species *Cyprinodon macularius* (Atherinomorpha: Cyprindontidae): taxonomic implications and conservation genetics. Copeia 2000(2):353-364.

Eddy, F. W., and M. E. Cooley. 1983. Cultural and environmental history of Cienega Valley, southeastern Arizona. University of Arizona Press, Tucson, AZ. 60pp.

Elton, C. S. 1958. The ecology of invasions by animals and plants. Matheun and Co., London. 181pp.

Etnier, D. A., and W. C. Starnes. 1993. The fishes of Tennessee. University of Tennessee Press, Knoxville, Tenn. 681pp.

Fernandez, P. J., and J. T. Bagnara. 1995. Recent changes in leopard frog distribution in the White Mountains of east central Arizona. Page 4 *in* Abstracts of the First Annual Meeting of the Southwestern Working Group of the Declining Amphibian Populations Task Force, Phoenix.

___, and P. C. Rosen. 1996a. Effects of the introduced crayfish *Orconectes virilis* on native aquatic herpetofauna in Arizona. Rept. to Heritage Prog., Ariz. Game and Fish Dept., IIPAM Proj. No. I94054, Phoenix. 57+pp.

___, and ___. 1996b. Effects of introduced crayfish on the Chiricahua leopard frog and its stream habitat in the White Mountains, Arizona. Page 5 *in* Abstracts of the Fourth Annual Meeting of the Declining Amphibian Populations Task Force, Phoenix.

___, and ___. 1998. Effects of introduced crayfish on the Chiricahua leopard frog and its stream habitat in the White Mountains, Arizona. Page 5 *in* Abstracts of the Fourth Annual Meeting of the Declining Amphibian Populations Task Force, Phoenix.

Finlayson, B. J., R. A. Schnick, R. L. Cailteux, L. DeMong, W. D. Horton, W. McClary, C. W. Thompson, and G. J. Tichacek. 2000. Rotenone use in fisheries management. American Fisheries Society, Bethesda, MD. 200pp.

Freeze, M., and S. Henderson. 1982. Distribution and status of the bighead carp and silver carp in Arkansas. North American J. Fisheries Management 2:197-200.

Fuller, P. L., and T. Brandt. 1997. Exotic snail and trematode affecting Federally endangered fish. U.S. Geological Survey, Biological Resources Div., Florida Caribbean Science Center, Gainesville, Florida. Http://nas.nfrcg.gov/. 1pp.

___, L. G. Nico, and J. D. Williams. 1999. Nonindigenous fishes introduced into inland waters of the United States. American Fisheries Society Special Pub. 27, Bethesda, MD. 613pp.

Gamradt, S. C., and L. B. Katz. 1996. Effect of introduced crayfish and mosquitofish on California newts. Conservation Biology 10(4):1155-1162.

Garcia de Jalon, D. 1987. River regulation in Spain. Regulated Rivers: Research and Management 1:343-348.

Garfin, G. 2005. Climate change in the Colorado River Basin. Pages 36-44 in Colorado River Basin Climate: Paleo, Present, Future, at http://wwa.colorado.edu/resources/colorado_river/Colorado_River_Basin_Climate.pdf

Garton, D. W., D. J. Berg, A. M. Stoeckmann, and W. R. Haag. 1993. Biology of recent invertebrate invading species in the Great Lakes: The spiny water flea, *Bythotrephes cederstroemi*, and the zebra mussel, *Dreissena polymorpha*. Pages 63-84 *in* McKnight, B. N., ed., Biological Pollution: The Control and Impact of Invasive Exotic Species, Indiana Academy of Science, Indianapolis.

Gehlbach, E. R. 1967. *Ambystoma tigrinum* (Green). Catalogue of American Amphibians and Reptiles, 52.1-52.4.

Girmendonk, A. L., and K. L. Young. 1997. Fish monitoring relative to impacts of the Central Arizona Project in selected reaches of the Gila River Basin, Arizona: Results of the winter 1996-97 field season. Nongame and Endangered Wildlife Program, Technical Report 119, Arizona Game and Fish Department, Phoenix. 24pp.

Goldberg, C. S., K. J. Field, and M. J. Sredl. 2004. Ramsey Canyon leopard frogs' (*Rana subaquavocalis*) identity chrisis: mitochondrial sequences support designation as Chiricahua leopard frogs (*Rana chiricahuensis*). Journal of Herpetology 38(3):313-319.

Grabowski, S. J., S. D. Hiebert, and D. M. Lieberman. 1984. Potential for introduction of three species of nonnative fishes into Central Arizona via the Central Arizona Project - a literature review and analysis. Bur. of Reclamation, Denver. 225pp.

Graham, M. R. 2000. Invasion of the killer pike. Tucson Citizen July 10, 2000:2.

Gray, S. T., J. L. Betancourt, C. L. Fastie, and S. T. Jackson. 2003. Patterns and sources of multidecadal oscillations in drought-sensitive tree-ring records from the central and southern Rocky Mountains. Geophysical Research Letters 30:10.1029/2002GL016154.

Great Lakes Fishery Commission. 1992. Ruffe in the Great Lakes: A threat to North American Fisheries. Rept to the Ruffe Task Force, Ann Arbor, Michigan.

Guiver, K. 1976. Implications of large-scale water transfers in the UK, the Ely Ouse to Essex transfer scheme. Chem. Ind. (London)4:132-135.

Hale, S. F. 1992. A survey of historical and potential habitat for the Tarahumara frog (*Rana tarahumarae*) in Arizona. Nongame and Endangered Wildlife Program Technical Report, Arizona Game and Fish Department, Phoenix.

Halliday, T. R. 1998. A declining amphibian conundrum. Nature 394:418-419.

Hardy, T. B., B. Bartz, and W. Carter. 1990. Instream flow recommendations for the fishes of Aravaipa Creek, Arizona. Twelve-Nine, Inc., Logan, Utah. 63pp.+app.

Hastings, J. R., and R. M. Turner. 1965. The changing mile. Univ. of Arizona Press, Tucson.

Hayes, M. P., and M. R. Jennings. 1986. Decline of ranid frog species in western North America: Are bullfrogs responsible? J. Herpetology 20:490-509.

Heckmann, R. A., J. E. Deacon., and P. D. Greger. 1986. Parasites of the woundfin minnow, *Plagopterus argentissimus*, and other endemic fishes from the Virgin River, Utah. Great Basin Nat. 46(4):662-675.

Hedrick, P. W., T. Kim, and K. M. Parker. 2001a. Parasite resistance and genetic variation in the endangered Gila topminnow. Anim. Cons. 4: 103-109

_____, and K. M. Parker. 1998. MHC variation in the endangered Gila topminnow. Evolution 52(1):194-199.

_____, ___, and R. N. Lee. 2001b. Using microsatellite and MHC variation to identify species, ESUs, and MUs in the endangered Sonoran topminnow. *Molec. Ecol.* 10: 1399-1412.

Hendrickson, D. A. 1993. Evaluation of the razorback sucker (*Xyrauchen texanus*) and Colorado squawfish (*Ptychocheilus lucius*) reintroduction programs in central Arizona

based on surveys of fish populations in the Salt and Verde Rivers from 1986 to 1990. Arizona Game and Fish Department, Phoenix. 166pp.

___, and W. L. Minckley. 1984. Cienegas - vanishing climax communities of the American Southwest. Desert Plants 6(3):131-175.

Hereford, R., R. H. Webb, and S. Graham. 2002. Precipitation history of the Colorado Plateau Region, 1900-2000. USGS Fact Sheet 119-02 (http://geopubs.wr.usgs.gov/ fact-sheet/fs119-02/).

Hershler, R., and J. J. Landye. 1988. Arizona Hydrobiidae (Prosobanchia: Rissoacea). Smithsonian Contr. to Zool., No. 459, Smithsonian Inst. Press, Washington, D.C. 63pp.

Hoole, D., and B. Nisan. 1994. Ultrastructural studies on intestinal response of carp, *Cyprinus carpio* L., to the pseudophyllidean tapeworm, *Bothriocephalus acheilognathi* Yanaguti, 1934. J. Fish Diseases 17:623-629.

Horne, F. R., T. L. Arsuffi, and R. W. Neck. 1992. Recent introduction and potential botanical impact of the giant rams-horn snail, *Marisa cornuarietis* (Pilidae) in the Comal Springs ecosystems of central Texas. Southw. Naturalist 37(2)194-196.

Howells, B. 1994. Grass carp spawning in Texas. Fisheries 19(7):48.

Hubbs, C. L., and K. F. Lagler. 1958. Fishes of the Great Lakes region. University of Michigan Press, Ann Arbor, Michigan. 213pp.

___, and R. R. Miller. 1941. Studies of the fishes of the order Cyprinodonts. XVII: Genera and species of the Colorado River system. Occas. Papers Mus. Zool., Univ. Mich. 433:1-9.

Hurlbert, S. H., J. Zedler, and D. Fairbanks. 1972. Ecosystem alteration by mosquitofish (*Gambusia affinis*) predation. Science 175:639-641.

Hyatt, M. W. 2004. Assessment of Colorado pikeminnow and razorback sucker reintroduction programs in the Gila River basin. Final report to US Fish and Wildlife Service, Tucson; Coop. Agreement No. 1448-20181-02-J849; Arizona Game and Fish Dept., Phoenix.

Inchausty, V. H., and R. A. Heckmann. 1997. Evaluation of fish Diplostomatosis in Strawberry Reservoir following rotenone application: a five-year study. Great Basin Nat. 57(1):44-49.

Inman, T. C., P. C. Marsh, B. F. Bagley, and C. A. Pacey. 1998. Survey of crayfishes of the Gila River basin, Arizona and New Mexico, with notes on occurrences in other Arizona drainages and adjoining States. U.S. Bureau of Reclamation, Phoenix. 22pp.

IPCC (Intergovernmental Panel on Climate Change). 2001. Climate change 2001: The scientific basis. Contribution of Working Group I to the third assessment report of the Intergovernmental Panel on Climate Change. Houghton, J. T.,Y. Ding, D. J. Griggs, M.

Noguer, P. J. van der Linden, X. Dai, K. Maskell, and C. A. Johnson, eds., Cambridge Univ. Press, Cambridge, United Kingdom and New York, NY.

___. 2007. Climate change 2007: The physical science basis summary for policymakers. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. IPCC Secretariat, Geneva, Switzerland, http://www.ipcc.ch

Jacobs, K. L., G. M. Garfin, and B. J. Morehouse. 2005. Climate science and drought planning: The Arizona experience. J. of the American Water Resources Association 41:437-445.

Jakle, M. 1992. Memo Feb. 26, 1992 - Summary of fish and water quality sampling along the San Pedro River from Dudleyville to Hughes Ranch near Cascabel, Oct. 24 and 25, 1992, and the Gila River from Coolidge Dam to Ashurst/Hayden Diversion Dam, Oct. 28-31, 1991. U.S. Bureau of Reclamation, Phoenix. 11pp.

Jancovich, J. K., E. W. Davidson, J. F. Morado, B. L. Jacobs, and J. P. Collins. 1997. Isolation of a lethal virus from the endangered tiger salamander, *Ambystoma tigrinum stebbinsi*. Diseases of Aquatic Organisms 31:161-167.

___, ___ ,___ ,___, and ___. 1998. Isolation of a lethal virus from the endangered tiger salamander, *Ambystoma tigrinum stebbinsi* Lowe. Abstract *in* Programs and Abstracts, Fourth Annual Meetings of the Southwestern United States Working Group of the Declining Amphibian Populations Task Force, Phoenix.

___, ___, N. Parameswaran, J. Mao, G. Chinchar, J. P. Collins, B. L. Jacobs, and A. Storfer. 2005. Evidence for emergence of an amphibian iridioviral disease because of human-enhanced spread. Molecular Ecology 14:213-224.

___, ___, A. Seiler, B. L. Jacobs, and J. P. Collins. 2001. Transmission of the *Ambystoma tigrinum* virus to alternate hosts. Diseases of Aquatic Organisms 46:159-163.

Jennings, R. D. 1995. Investigations of recently viable leopard frog populations in New Mexico: *Rana chiricahuensis* and *Rana yavapaiensis*. New Mexico Game and Fish Department, Santa Fe.

Johnson, J. 1977. Memo to the files: Gila topminnow survey, Arizona, 15-19 March, 1977. U.S. Fish and Wildlife Service, Albuquerque, NM. 5pp.

___, and C. Hubbs. 1989. Status and conservation of poeciliid fishes. Pages 301-331 *in* Meffe, G. K., and F. F. Snelson, eds., Ecology and Evolution of Livebearing Fishes (Poeciliidae), Prentice Hall, Englewood Cliffs, New Jersey. 453pp.

Jones, L. L. C., and M. J. Sredl. 2004. Recent population declines of the Chiricahua leopard frog in the Galiuro Mountains, Arizona. Page 48 *in* Program and Abstracts, Connecting Mountain Islands and Desert Seas, Biodiversity and Management of the Madrean

Archipelago II and 5th Conference on Research and Resource Management in the Southwestern Deserts, Tucson, Arizona.

Jones, T. R., J. P. Collins, T. D. Kocher, and J. B. Mitton. 1988. Systematic status and distribution of *Ambystoma tigrinum stebbinsi* Lowe (Amphibia:Caudata). Copeia 1988(3):621-635.

___, E. J. Routman, D. J. Begun, and J. P. Collins. 1995. Ancestry of an isolated subspecies of salamander, *Ambystoma tigrinum stebbinsi* Lowe: the evolutionary significance of hybridization. Molecular Phylogenetics and Evolution 4(2):194-202.

Kapuscinski, A. R., and T. J. Patronski. 2005. Genetic methods for biological control of non-native fish in the Gila River Basin. Contract report to the U.S. Fish and Wildlife Service. University of Minnesota, Institute for Social, Economic and Ecological Sustainability, St. Paul, Minnesota, Minnesota Sea Grant Publication F 20.

Karp, C. A., and H. M. Tyus. 1990. Behavioral interactions between young Colorado squawfish and six fish species. Copeia 1990(1):25-34.

Keller, T. A., and P. A. Moore. 2000. Context-specific behavior: crayfish size influences crayfish-fish interactions. J. of the North American Benthological Society 19(2):344-351.

Kerpez, T. A., and N. A. Smith. 1987. Saltcedar control for wildlife habitat improvement in the southwestern United States. USDI Fish and Wildlife Service, Resource Publication 169, Washington, D.C.. 16pp.

Kesner, B. K., A. P. Karam, C. A. Pacey, and P. C. Marsh. 2008. Demographics and post-stocking survival of repatriated razorback sucker in Lake Mohave. Annual Report, U.S. Bureau of Reclamation Agreement No. 06-FC-300003, Arizona State University, Tempe.

King, K. A., B. J. Zaun, and A. L. Velasco. 1999. Contaminants as a limiting factor of fish and wildlife populations in the Santa Cruz River, Arizona. Arizona Ecological Services Field Office, U.S. Fish and Wildlife Service, Phoenix. 66pp.

Knowles, G. W. 1994. Fisheries survey of the Apache-Sitgreaves National Forests, third trip report: Eagle Creek, June 5-7 and August 2 1994. Arizona State University, Tempe. 6pp.

Kwain, W., and A. H. Lawrie. 1981. Pink salmon in the Great Lakes. Fisheries 6(2):2-6.

Lachner, E. A., C. R. Robins, and W. R. Courtenay, Jr. 1970. Exotic fishes and other aquatic organisms introduced into North America. Smithsonian Contributions to Ecol. 59:1-29.

Lassuy, D. R. 1995. Introduced species as a factor in extinction and endangerment of native fish species. American Fisheries Society Symposium 15:391-396.

Laurenson, L. B. J., and C. H. Hocutt. 1985. Colonization theory and invasive biota: The Great Fish River, a case history. Environmental Monitoring and Assessment 6(1985):71-90.

Lawson, L. 1995. Upper Santa Cruz River intensive survey: a volunteer driven study of the water quality and biology of an effluent dominated desert grassland stream in southeast Arizona. Arizona Department of Environmental Quality, Tucson, AZ. 68pp+app.

Lee, D. S., C. R. Gilbert, C. H. Hocutt, R. E. Jenkins, D. E. McAllister, and J. R. Stauffer, Jr. 1980. Atlas of North American freshwater fishes. North Carolina State Museum of Natural History, Raleigh, North Carolina. 854pp.

Leon, S. C. 1989. Trip Report: East Fork White River, 26 May 1989. United States Dept. Interior, Fish and Wildlife Service, Pinetop, AZ.

Lever, C. 1996. Naturalized fishes of the world. Academic Press, San Diego.

Loch, J. J., and S. A. Bonar. 1999. Occurrence of grass carp in the lower Columbia and Snake Rivers. Transactions of the American Fisheries Society 128:374-379.

Lodge, D. M., C. A. Taylor, D. M. Holdich, and J. Skurdal. 2000. Nonindigenous crayfishes threaten North American freshwater biodiversity. Fisheries 25(8):7-20.

Longcore, J. E., A. P. Pessier, and D. K. Nichols. 1999. *Batracytrium dendrobatidis* gen. Et sp. Nov., a chytrid pathogenic to amphibians. Mycologia 91(2):219-227.

Lovich, J. E., and R. C. DeGouvenain. 1998. Saltcedar invasion in the desert wetlands of the southwestern United States: ecological and political implications. Pages 447-467 *in* Majumdar, S. K., E. W. Miller, and F. J. Brenner, eds., Ecology of Wetlands, The Pennsylvania Academy of Science, Philadelpia.

Lowe, C. H. 1954. A new salamander (genus *Ambystoma*) from Arizona. Proceedings of the Biological Society of Washington 67:243-246.

Lydeard, C., and M. C. Belk. 1993. Management of indigenous fish species impacted by introduced mosquitofish: an experimental approach. Southwestern Nat. 38(4):370-373.

MacArthur, R. H., and E. O. Wilson. 1967. The theory of island biogeography. Princeton University Press, Princeton, New Jersey.

MacDonald, I. A. W., F. J. Kruger, and A. A. Ferrar. 1986. The ecology and management of biological invasions in southern Africa. Proc. of the National Synthesis Symposium on the Ecology of Biological Invasions, Oxford University Press, Cape Town, South Africa.

Mack, R. N., D. Simberloff, W. M. Lonsdale, H. Evans, M. Clout, and F. Bazzaz. 2000. Biotic invasions: causes, epidemiology, global consequences and control. Issues in Ecology 5:1-25. http://esa.sdsc.edu/issues.htm

MacKenzie, D., Z. Gedalof, D. L. Peterson, and P. Mote. 2004. Climatic change, wildlife, and conservation. Conservation Biology 18(4):890-902.

Mann, R. H. K. 1988. Fish and fisheries of regulated rivers in the U.K. Regulated Rivers: Research and Management 2:411-424.

Marsh, P. C. 1997. Survey of crayfishes of the Gila River basin in Arizona and New Mexico. Progress report to U.S. Bureau of Reclamation, Phoenix. 91pp+app.

___. 1999. Central Arizona Project fish monitoring. Summary of FY 1999 fish surveys in behalf of a long-term monitoring plan for fish populations in selected waters of the Gila River basin, Arizona. Report to U.S. Bureau of Reclamation, Phoenix, Cooperative Agreement No. 1425-97-FC-32-00780, Arizona State University, Tempe, AZ. 24pp.

___. 2004. Central Arizona Project fish monitoring: DRAFT summary of sample year 2002 fish surveys in behalf of a long-term monitoring plan for fish populations in selected waters of the Gila River basin, Arizona. Submitted in partial fulfillment of U.S. Bureau of Reclamation Agreement Number 01-FC-32-0150, Phoenix Area Office, Phoenix.

___, F. J. Abarca, M. E. Douglas, and W. L. Minckley. 1989. Spikedace (*Meda fulgida*) and loach minnow (*Tiaroga cobitis*) relative to introduced red shiner (*Cyprinella lutrensis*). Arizona Game and Fish Department, Phoenix. 116pp.

___, and J. E. Brooks. 1989. Predation by ictalurid catfishes as a deterrent to re-establishment of hatchery-reared razorback suckers. The Southwestern Naturalist 34(2):188-195.

___, ___, D. A. Hendrickson, and W. L. Minckley. 1990. Fishes of Eagle Creek, Arizona, with records for threatened spikedace and loach minnow (Cyprinidae). Journal of the Arizona-Nevada Academy of Science 23(2):107-116.

___, and Brian R. Kesner. 2005. Central Arizona Project fish monitoring: DRAFT summary of sample year 2002 fish surveys in behalf of a long-term monitoring plan for fish populations in selected waters of the Gila River basin, Arizona. Submitted in partial fulfillment of U.S. Bureau of Reclamation Agreement Number 01-FC-32-0150, Phoenix Area Office, Phoenix.

___, and ___. 2007. Central Arizona Project fish monitoring: DRAFT summary of sample year 2002 fish surveys in behalf of a long-term monitoring plan for fish populations in selected waters of the Gila River basin, Arizona. Submitted in partial fulfillment of U.S. Bureau of Reclamation Agreement Number 01-FC-32-0150, Phoenix Area Office, Phoenix.

___, and W. L. Minckley. 1982. Fishes of the Phoenix metropolitan area in central Arizona. North American Journal of Fisheries Management 4:395-402.

___, and ___. 1990. Management of endangered Sonoran topminnow at Bylas Springs, Arizona: description, critique, and recommendations. Great Basin Naturalist 50(3):265-272.

___, C. A. Pacey, and B. R. Kesner. 2003. Decline of the razorback sucker in Lake Mohave, Colorado River, Arizona and Nevada. Trans. American Fisheries Society 132:1251-1256.

Matsui, M. L. 1981. The effects of introduced teleost species on the social behavior of *Cyprinodon macularius californiensis*. M.S. Thesis, Occidental Col., Los Angeles. 61pp.

Matter, W. J. 1991. Potential for transfer of non-native fish in Central Arizona Project canal waters to the Gila River system. Report for U.S. Bureau of Reclamation, Phoenix. School of Renewable Natural Resources, University od Arizona, Tucson. 82+pp.

McAllister, D. E., and B. W. Coad. 1974. Fishes of Canada's national capital region. Department of Environment, Fisheries, and Marine Services, Misc. Special Publication 24, Ottawa, Canada. 1pp.

McCabe, G. J., M. A. Palecki, and J. L. Betancourt. 2004. Pacific and Atlantic Ocean influences on multidecadal drought frequency in the United States. Proceedings of the National Academy of Sciences 101(12):4136-4141.

McKnight, B. N. 1993. Biological pollution. The control and impact of invasive exotic species. Indiana Academy of Science, Indianapolis. 261pp.

Meador, M. R. 1992. Inter-basin water transfer: ecological concerns. Fisheries 17(2):17-22.

___. 1996. Water transfer projects and the role of fisheries biologists. Fisheries 21(9):18-23.

Medina, A. L., and J. N. Rinne. 1999. Ungulate-fishery interactions in southwestern riparian ecosystems: pretensions and realities. Pages 307-323 *in* McCabe, R. E., and S. E. Loosheds, eds., Natural Resources Management: Perceptions and Reality, Transactions of the 64th North American Wildlife and Natural Resources Conference, Wildlife Management Institute, Washington, D.C.

Meffe, G. K. 1983. Attempted chemical renovation of an Arizona springbrook for management of endangered Sonoran topminnow. North American J. Fisheries Management 3:315-321.

___. 1984. Effects of abiotic disturbance on coexistence of predator-prey fish species. Ecology 65(5):1525-1534.

___. 1985. Predation and species replacement in American Southwestern stream fishes: A case study. Southwest Nat. 30:173-187.

___, and D. A. Hendrickson. 1980. Letter to Dr. James Johnson, U.S. Fish and Wildlife Service. Interim Report: Status of *Poeciliopsis occidentalis* populations in Arizona. U.S. Fish and Wildlife Service, Albuquerque, NM.

___, ___, W. L. Minckley, and J. N. Rinne. 1983. Factors resulting in decline of the endangered Sonoran topminnow *Poeciliopsis occidentalis* (Atheriniformes: Poeciliidae) in the United States. Biological Conservation 25:135-159.

___, ___, and J. N. Rinne. 1982. Description of a new topminnow population in Arizona, with observations on topminnow/mosquitofish co-occurrence. Southwestern Nat. 27:226-228.

Mettee, M. F., P. E. O'Neil, and J. M. Pierson. 1996. Fishes of Alabama and the Mobile Basin. Oxmoor House, Birmingham, Alabama. 820pp.

Miller, D. 1998. Fishery survey report: Negrito Creek within the Gila National Forest, New Mexico, 29 and 30 June 1998. Gila National Forest, Silver City, NM. 7pp.

Miller, R. R. 1950. Notes on the cutthroat and rainbow trouts with the description of a new species from the Gila River, New Mexico. Occasional Papers of the Museum of Zoology. University of Michigan, Ann Arbor, Michigan 529:1-43.

___. 1957. Origin and dispersal of the alewife, *Alosa pseudoharengus*, and the gizzard shad, *Dorosoma cepedianum*, in the Great Lakes. Trans. American Fisheries Society 86:97-111.

___. 1961. Man and the changing fish fauna of the American Southwest. Pap. Michigan Acad. Sci., Arts, Lett. 46:365-404.

___, J. D. Williams, and J. E. Williams. 1989. Extinctions of North American fishes during the past century. Fisheries 14:22-38.

Mills, E. L., M. D. Scheuerell, J. T. Carlton, and D. L. Strayer. 1997. Biological invasions in the Hudson River basin: an inventory and historical analysis. New York State Museum Circular 57, Albany, New York.

Minckley, W. L. 1969. Native Arizona fishes, part I— livebearers. Ariz. Wildl. Views 16:6-8.

___. 1973. Fishes of Arizona. Ariz. Game and Fish Dept., Sims Printing Company, Inc., Phoenix. 293pp.

___. 1985. Native fishes and natural aquatic habitats in U.S. Fish and Wildlife Region II west of the Continental Divide. Rept. to U.S. Fish and Wildlife Service, Albuquerque, New Mexico, Dept. of Zoology, Arizona State University, Tempe. 158pp.

___. 1991. Native fishes of the Grand Canyon region: An obituary? Pages 124-177 *in* Colorado River Ecology and Dam Management: Proc. of a Symposium, 24-25 May 1990, Santa Fe, New Mexico, National Academy Press, Washington, D.C.

___. 1999. Ecological review and management recommendations for recovery of the endangered Gila topminnow. Great Basin Naturalist 59(3): 230-244.

___, and J. E. Deacon. 1968. Southwestern fishes and the enigma of "endangered species". Science 159:1424-1432.

___, and ___, eds. 1991. Battle against extinction: Native fish management in the American west. Univ. Arizona Press, Tucson. 517pp.

___, and M. E. Douglas. 1991. Discovery and extinction of western fishes: A blink of the eye in geologic time. Pages 7-17 *in* Minckley, W. L. and J. E. Deacon, eds. Battle Against Extinction: Native Fish Management in the American West. Univ. Arizona Press, Tucson. 517pp.

___, R. R. Miller, and S. M. Norris. 2002. Three new pupfish species, *Cyprinodon* (Teleostei, Cyprinodontidae), from Chihuahua, Mexico, and Arizona, USA. Copeia 2002(3):687-705.

___, J. N. Rinne, and J. E. Johnson. 1977. Status of the Gila topminnow and its co-occurrence with mosquitofish. Research Paper RM-198, Rocky Mtn. For. & Range Exp. Stn., USDA Forest Service, Ft. Collins, Colorado. 8pp.

Mitchell, A. 1994. Bothriocephalosis. Chapter XII, pages 1-7 *in* J. C. Thoesen, ed., Suggested Procedures for the Detection and Identification of Certain Finfish and Shellfish Pathogens. Fish Health Sect., Am. Fish. Soc.

Modde, T., K. P. Burnham, and E. J. Wick. 1996. Population status of the razorback sucker in the middle Green River. Conservation Biology 10:110-119.

Montgomery (J. M.) Consulting Engineers. 1985. Wildlife and fishery studies, upper Gila water supply project. J.M. Montgomery Consulting Engineers for Dept. Interior, Bureau of Reclamation, Boulder City, NV.

Moore, R. H., R. A. Garrett, and P. J. Wingate. 1976. Occurrence of red shiner, *Notropis lutrensis*, in North Carolina: a probably aquarium release. Transactions of the American Fisheries Society 105:220-221.

Moyle, P. B. 1976. Fish introductions in California: history and impact on native fishes. Biological Conservation 9:101-118.

___, H. W. Li, and B. A. Barton. 1986. The Frankenstein effect: impact of introduced fishes on native fishes in North America. Pages 415-426 *in* Stroud, R. H., ed., Fish Culture in Fisheries Management, American Fisheries Society, Bethesda, MD.

___, and R. Nichols. 1974. Decline of the native fish fauna of the Sierra-Nevada foothills, central California. Am. Midl. Nat. 92(1):72-83.

___, and J. E. Williams. 1990. Biodiversity loss in the temperate zone: decline of the native fish fauna of California. Conservation Biology 4(3):275-284.

Mueller, G. 1989. Fisheries investigations in the Central Arizona Project Canal System. Final Report 1986-1989, Bureau of Reclamation, Boulder City, NV. 114pp.

___. 1990. Fisheries investigations: Central Arizona Project canal system: Final report 1986-1989. Lower Colorado Regional Off., U.S. Bur. Reclamation, Boulder City, NV. 114pp.

___. 1997. Establishment of a fish community in the Hayden-Rhodes and Salt-Gila aqueducts, Arizona. North American Journal of Fisheries Management 16(4):795-804.

Neary, A. P., J. N. Rinne, and D. G. Neary. 1996. Physical habitat use by spikedace in the upper Verde River, Arizona. Hydrology and Water Resources in Arizona and the Southwest: 26:23-28.

Nico, L. G., and R. T. Martin. 2000. The South American suckermouth armored catfish, *Pterygoplichthys anisitsi* (Pisces:Loricariidae), in Texas, with comments on foreign fish introductions in the American southwest. The Southwestern Naturalist 46(1):98-104.

Olden, J. D., and N. L. Poff. 2005. Long-term trends of native and non-native fish faunas in the American southwest. Animal Biodiversity and Conservation 28:75-89.

Ono, R. D., J. D. Williams, and A. Wagner. 1983. Vanishing fishes of North America. Stone Wall Press, Washington, D.C.

Overby, S. T., and C. D. Overby. 2005. Native fish restoration of a southwest stream following decommissioning of a hydroelectric facility. *In* Moglen, G. E., ed., Managing Watersheds for Human and Natural Impacts: Engineering, Ecological, an Economic Challenges, Proc. Of the Watershed Management Conf., Environmental and Water Resources Institute and American Society of Civil Engineers, Reston, Virginia.

Pacey, C. A., and P. C. Marsh. 1998. Resource use by native and nonnative fishes of the lower Colorado River: literature review, summary, and assessment of relative roles of biotic and abiotic factors in management of an imperiled indigenous ichthyofauna. Final report submitted to Bureau of Reclamation, Lower Colorado Region. Boulder City, NV. Arizona State University, Tempe, AZ. 59pp+app.

Painter, C. W. 2000. Status of listed and category herpetofauna. Report to U.S. Fish and Wildlife Service, Completion report for E-31/1-5, Albuquerque, NM.

Parker, K. M., R. J. Sheffer, and P. W. Hedrick. 1999. Molecular variation and evolutionarily significant units in the endangered Gila topminnow. Conservation Biology 13(1):108-116.

Parmley, D. D., and M. J. Brouder. 1998. Potential predation on native roundtail chub, *Gila robusta*, by non-native fishes in the Verde River, Arizona. Proceedings of the Desert Fishes Council XXX:32.

Paroz, Y. M., D. L. Propst, and J. A. Stefferud. 2006. Long-term monitoring of fish assemblages in the Gila River drainage, New Mexico. New Mexico Department of Game and Fish, Santa Fe, NM. 74pp.

Petitjean, M. O. G., and B. R. Davies. 1988. Ecological impacts of inter-basin water transfers: some case studies, research requirements and assessment procedures in southern Africa. South African Journal of Science 84:819-828.

Pister, E. P. 1979. Death Valley Area Committee Report. Proc. of the Desert Fishes Council 11:22-28.

Platania, S. P. 1990. Reports and verified occurrence of logperches (*Percina caprodes* and *Percina macroplepida*) in Colorado. Southw. Naturalist 35(1):87-88.

Platz, J. E. 1993. *Rana subaquavocalis*, a remarkable new species of leopard frog (*Rana pipiens* Complex) from southeastern Arizona that calls under water. J. Herpetology 27(2):154-162.

___, R. W. Clarkson, J. C. Rorabaugh, and D. M. Hillis. 1990. *Rana berlandieri*: Recently introduced populations in Arizona and southeastern California. Copeia 1990(2):324-333.

___, and J. S. Mecham. 1979. *Rana chiricahuensis*, a new species of leopard frog (*Rana pipiens* Complex) from Arizona. Copeia 1979(3):383-390.

___, and ___. 1984. *Rana chiricahuensis*. Catalogue of American Amphibians & Reptiles 347.1.

Plosila, D. S., and G. W. LaBar. 1981. Occurrence of juvenile blueback herring in Lake Champlain. New York Fish and Game Journal 28(1):118.

Por, F. D. 1978. Lessespian migration: the influx of Red Sea biota into the Mediterranean by way of the Suez Canal. Springer-Verlag, New York, NY. 228pp.

Propst, D. L. 2005. Systematic investigations of warmwater fish communities. FW-17-R-32 Performance Report, 1 July 2004–30 June 2005, New Mexico Department of Game and Fish, Santa Fe, NM. 43pp.

___, and K. R. Bestgen. 1991. Habitat and biology of the loach minnow, *Tiaroga cobitis*, in New Mexico. Copeia 1991(1):29-38.

___, ___, and C. W. Painter. 1986. Distribution, status, biology, and conservation of the spikedace (*Meda fulgida*) in New Mexico. Endangered Species Report No. 15, U.S. Fish and Wildlife Service, Albuquerque, New Mexico. 93pp.

___, ___, and ___. 1988. Distribution, status, biology, and conservation of the loach minnow (*Tiaroga cobitis*) Girard in New Mexico. Endangered Species Report 17, USFWS, Albuquerque, NM. 75pp.

Propst, D.L., J.P. Hubbard, and K.R. Bestgen. 1984. Habitat preferences of fishes endemic to the desert southwest. Final Report under Cooperative Agreement No. 14-16-0002-84-913.

___, J. A. Stefferud, and P. R. Turner. 1992. Conservation and status of Gila trout, *Oncorhynchus gilae*. The Southwestern Naturalist 37(2):117-125.

Quattro, J. M., P. L. Leberg, M. E. Douglas, and R. C. Vrijenhoek. 1996. Molecular evidence for a unique evolutionary lineage of endangered Sonoran Desert fish (Genus *Poeciliopsis*). Conservation Biology 10(1):128-135.

Raibley, P. T., D. Blodgett, and R. E. Sparks. 1995. Evidence of grass carp (*Ctenopharyngodon idella*) reproduction in the Illinois and upper Mississippi Rivers. J. Freshwater Ecology 10(1):65-74.

Regional Recharge Committee. 1996. Technical report: final report. Arizona Department of Water Resources, Tucson Active Management Area, Tucson. 175pp.

Rinne, J. N. 1976. Cyprinid fishes of the genus Gila from the lower Colorado River basin. Wasmann Journal Biology 34(1):65-107.

___. 1989. Physical habitat use by loach minnow, *Tiaroga cobitis* (Pisces:Cyprinidae), in southwestern desert streams. The Southwestern Naturalist 34(1):109-117.

___. 1991. Habitat use by spikedace, *Meda fulgida* (Pisces: Cyprinidae) in southwestern streams with reference to probable habitat competition by red shiner, *Notropis lutrensis* (Pisces: Cyprinidae). Southw. Nat. 36(1)7-13.

___. 1999. The status of spikedace (*Meda fulgida*) in the Verde river, 1999: implications for management and research. Hydrology & Water Resources of Arizona & the Southwest, Proc. of the 1999 Meetings of the Hydrology Sect., Ariz.-Nev. Acad. Sci. Vol. 29.

___. 2001. Relationship of fine sediment and two native southwestern fish species. Hydrology and Water Resources in Arizona and the Southwest: 31:67-70 pp.

___, and B. P. Deason. 2000. Habitat availability and utilization by two native, threatened fish species in two southwestern rivers. Pages 43 – 52 *in* Hydrology and Water Resources of the Southwest, Volume 30, Proceedings of the 2000 meetings of the Hydrology Section, Arizona-Nevada Academy of Science, Northern Arizona University, Flagstaff.

___, and E. Kroeger. 1988. Physical habitat used by spikedace, *Meda fulgida*, in Aravaipa Creek, Arizona. Proc. of the Western Association of Fish and Wildlife Agencies Agenda 68:1-10.

___, and W. L. Minckley. 1970. Native Arizona fishes: Part III - chubs. Wildl. Views 17(5):12-19.

___, and W. L. Minckley. 1991. Native fishes of arid lands: a dwindling resource of the desert southwest. Gen. Tech. Report RM-GTR-206, Rocky Mtn Forest and Range Experiment Station, USDA Forest Service, Ft. Collins, CO. 45pp.

___, B. Rickel, and D. Hendrickson. 1980. A new Gila topminnow locality in southern Arizona. Research Note RM-382, Rocky Mtn. For. & Range Experiment Station, USDA Forest Service, Ft. Collins, Colorado. 4pp.

___, and J. A. Stefferud. 1996 . Factors contributing to collapse yet maintenance of a native fish community in the desert southwest (USA). Pages 157-162 *in* Hancock, D. A., D. C. Smith, A. Grant, and J. P. Beaumer, eds., Developing and Sustaining World Fisheries Resources: The State of Science and Management, Second World Fisheries Congress, Brisbane, Australia, July 28-Aug. 2, 1996.

Robinson, A. T., P. P. Hines, J. A. Sorensen, and S. D. Bryan. 1998. Parasites and fish health in a desert stream, and management implications for two endangered fishes. North American Journal of Fisheries Management 18:599-608.

Rorabaugh, J. C. 2005. *Rana berlandieri* Baird, 1854(a), Rio Grande leopard frog. Pages 530-532 *in* Lannoo, M. J., ed., Amphibian Declines: The Conservation Status of United States Species, University of California Press, Berkeley.

___, and J. M. Servoss. 2006. *Rana berlandieri* (Rio Grande leopard frog). Mexico: Sonora. Herpetological Review 37(1):102.

___, M. J. Sredl, V. Miera, and C. A. Drost. 2002. Continued invasion by an introduced frog (*Rana berlandieri*): southwestern Arizona, southeastern California, and Rio Colorado, Mexico. The Southwestern Naturalist 47(1):12-20.

Rosen, P. C., S. S. Sartorius, C. R. Schwalbe, P. A. Holm, and C. H. Lowe. 1996a. Draft annotated checklist of the amphibians and reptiles of the Sulphur Springs Valley, Cochise County, Arizona. Final report, part 1, to the Arizona Game and Fish Department, Heritage Program, IIPAM Project No. I92052, Phoenix.

___, and C. R. Schwalbe. 2002. Effects of exotics on reptiles and amphibians. Pages 220-240 *in* Tellman, B., ed., Invasive Exotic Species in the Sonoran Region, University of Arizona Press and the Arizona-Sonora Desert Museum, Tucson.

___, ___, D. A. Parizek, P. A. Holm, and C. H. Lowe. 1995. Introduced aquatic vertebrates in the Chiricahua region: effects on declining native ranid frogs. Pages 251-261 *in* DeBano, L. F., G. J. Gottfried, R. H. Hamre, C. B. Edminster, P. F. Ffolliott, and A. Ortega-Rubio, tech. coords., Biodiversity and Manage. of the Madrean Archipelago: the Sky Islands of the Southwestern U.S. & Northwestern Mexico, Gen. Tech. Rep. RM-GTR-264, Rocky Mtn. For. & Range Exp. Stn., USDA Forest Service, Ft. Collins, CO.

___, ___, and S. S. Sartorius. 1996b. Decline of the Chiricahua leopard frog in Arizona mediated by introduced species. Report to Heritage program, IIPAM Project No. I92052, Arizona Game and Fish Department, Phoenix.

___, J. E. Wallace, and C. R. Schwalbe. 2002. Resurvey of the Mexican garter snake (*Thamnophis eques*) in southeastern Arizona. School of Renewable Natural Resources, University of Arizona, Tucson.

Rosenfield, A., and R. Mann. 1992. Dispersal of living organisms into aquatic ecosystems. Maryland Sea Grant Program, College Park, Maryland. 470pp.

Ross, S. T. 1991. Mechanisms structuring stream fish assemblages: are there lessons from introduced species. Environmental Biology of Fishes 30:359-368.

Rubinoff, I. 1970. The sea-level canal controversy. Biological Conservation 3(1):33-36.

Rubinoff, R. W., and Rubinoff, I. 1968. Interoceanic colonization of a marine goby through the Panama Canal. Nature 217:476-478.

Ruppert, J. B., R. T. Muth, T. P. Nesler. 1993. Predation on fish larvae by adult red shiner, Yampa and Green Rivers, Colorado. Southw. Nat. 38(4):397-399.

San Xavier District, Tohono O'odham Nation. 1999. Letter to Bureau of Reclamation with comments on draft biological opinion on impacts of CAP to Gila topminnow in the Santa Cruz River basin. 4pp.

Schmidt, R. E. 1986. Zoogeography of the northern Appalachians. Chapter 5 *in* Hocutt, C. H., and E. O. Wiley, eds., The Zoogeography of North American Freshwater Fishes, John Wiley and Sons, New York.

Schmitz, D. C., J. D. Schardt, A. J. Leslie, F. A. Dray, Jr., J. A. Osborne, and B. V. Nelson. 1993. The ecological impact and management history of three invasive alien aquatic plant species in Florida. Pages 173-194 *in* McKnight, B. N., ed., Biological Pollution. The Control and Impact of Invasive Exotic Species, Indiana Academy of Science, Indianapolis.

Schneider, N., and B. D. Cornuelle. 2005. The forcing of the Pacific Decadal Oscillation. Journal of Climate 18:4355-4373.

Schoenherr, A. A. 1974. Life history of the topminnow *Poeciliopsis occidentalis* (Baird and Girard) in Arizona and an analysis of its interaction with the mosquitofish *Gambusia affinis* (Baird and Girard). PhD. Dissertation, Arizona State University, Tempe, AZ.

___. 1988. A review of the life history and status of the desert pupfish, *Cyprinodon macularius*. Bulletin Southern California Academy Science 87(3):104-134.

Schooley, J. D., and P. C. Marsh. 2007. Stocking of endangered razorback suckers in the lower Colorado River basin over three decades: 1974–2004. North American Journal of Fisheries Management 27:43-51.

Schreiber, D. C. 1978. Feeding interrelationships of fishes of Aravaipa Creek, Arizona. Arizona State University, Tempe, Arizona. 312pp.

Scott, W. B., and W. J. Christie. 1963. The invasion of the lower Great Lakes by the white perch, *Roccus americanus* (Gmelin). J. Fisheries Research Board of Canada 51:1189-1195.

___, and E. J. Crossman. 1973. Freshwater fishes of Canada. Fisheries Research Board of Canada, Bulletin 184, Ottawa, ON.

Scott, A. L., and J. M. Grizzle. 1979. Pathology of cyprinid fishes caused by *Bothriocephalus gowkongenesis* Yea, 1955 (Cestoda: Pseudophyllidea). J. Fish Diseases 2:69-73.

Seager, R., M. Ting, I. Held, Y. Kushnir, J. Lu, G. Vecchi, H. Huang, N. Harnik, A. Leetmaa, N. Lau, C. Li, J. Velez, and N. Naik. 2007. Model projections of an imminent transition to a more arid climate in southwestern North America. Science 316:1181-1184.

Shelton, W. L., and R. O. Smitherman. 1984. Exotic fishes in warmwater aquaculture. Pages 262-301 *in* Courtenay, Jr., W.R., and J.R. Stauffer, Jr., eds., Distribution, Biology, and Management of Exotic Fishes, Johns Hopkins Univ. Press, Baltimore, Maryland.

Sheppard, P. R., A. C. Comrie, G. D. Packin, K. Angersbach, and M. K. Hughes. 2002. The climate of the Southwest. Climate Research 21:219-238.

Shirman, J. V. 1984. Control of aquatic weeds with exotic fish. Pages 302-312 *in* Courtenay, Jr., W. R., and J. R. Stauffer, Jr., eds., Distribution, Biology, and Management of Exotic Fishes, Johns Hopkins University Press, Baltimore, Maryland.

Silvey, W., and M. S. Thompson. 1978. The distribution of fishes in selected streams on the Apache-Sitgreaves National Forest. Completion report to USDA Forest Service, Arizona Game and Fish Department, Phoenix, AZ. 49pp.

Simberloff, D., D. C. Schmitz, and T. C. Brown. 1997. Strangers in paradise: Impact and management of nonindigenous species in Florida. Island Press, Washington, D.C. 467pp.

Simms, J. R. 2001. Cienega Creek stream restoration project. Hendrickson, D. A., and L. T. Findley, eds, Proc. of the Desert Fishes Council 32:13-14.

___, and K. M. Simms. 1991. What constitutes quality habitat for Gila topminnow (*Poeciliopsis occidentalis*)? An overview of habitat parameters supporting a robust population in Cienega Creek, Pima Co., AZ. Proceedings of the Desert Fishes Council 23:82.

Simons, L. H. 1987. Status of the Gila topminnow (*Poeciliopsis occidentalis occidentalis*) in the United States. Arizona Game and Fish Department, Phoenix.

Sinderman, C. J. 1993. Disease risks associated with importation of nonindigenous marine animals. Marine Fisheries Review 54(3):1-10.

Sloat, M. R. 1999. The use of artificial migration barriers in the conservation of resident stream salmonids. Montana Cooperative Fishery Research Unit, Montana State University, Bozeman, MT. 12pp.

Smith, C. L. 1985. The inland fishes of New York state. New York State Dept. of Environmental Conservation, Albany, NY.

Snelson, F. F., Jr. 1968. Systematics of the cyprinid fish *Notropis amoenus*, with comments on the subgenus *Notropis*. Copeia 1968(4):776-802.

Snyder, J. T., T. J. Maret, and J. P. Collins. 1996. Exotic species and the distribution of native amphibians in the San Rafael Valley, AZ. Abstract *in* Program and Abstracts, Second Annual Meeting of the Southwestern United States Working Group of the Declining Amphibians Populations Task Force, Tucson, AZ.

___, ___, and ___. 1998. Species' interactions and drying frequency determine extinction and colonization rates in metapopulations of the Huachuca tiger salamander, introduced fish, and introduced bullfrogs in the San Rafael Valley, AZ. Abstract *in* Program and Abstracts, Fourth Annual Meeting of the Southwestern United States Working Group of the Declining Amphibian Populations Task Force, Phoenix, AZ.

Solomon, D. J. 1975. Water transfers and coarse fish. Pages 14-20 *in* Proceedings of the Fifth British Coarse Fisheries Conference.

Soule, M. E. 1990. The onslaught of alien species, and other challenges in the coming decades. Conservation Biology 4(3):233-239.

Speare, R., and L. Berger. 2000. Global distribution of chytridiomycosis in amphibians. Http://www.jcu.edu.au/school/phtm/PHTM/frogs/chyglob.htm.

Sredl, M. J., and J. M. Howland. 1994. Conservation and management of Madrean populations of the Chiricahua leopard frog, *Rana chiricahuensis*. Nongame Branch, Arizona Game and Fish Department, Phoenix.

___, ___, J. E. Wallace, and L. S. Saylor. 1997. Status and distribution of Arizona's native ranid frogs. Pages 45-101 *in* Sredl, M. J., ed., Ranid Frog Conservation and Management, Nongame and Endangered Wildlife Program, Technical Report 121, Arizona Game and Fish Department, Phoenix.

___, and R. D. Jennings. 2005. *Rana chiricahuensis*: Platz and Mecham, 1979, Chiricahua leopard frogs. Pages 546-549 *in* Lannoo, M. J., ed., Amphibian Declines: The Conservation Status of United States Species. University of California Press, Berkeley.

___, and L. S. Saylor. 1998. Conservation and management zones and the role of earthern cattle tanks in conserving Arizona leopard frogs on large landscapes. Pages 211-225 *in* Proceedings of Symposium on Environmental, Economic, and Legal Issues Related to Rangeland Water Developments, November 13-15, 1997, Tempe, AZ.

Stefferud, J. A.. 1993. 1992 Fishery monitoring for the Quien Sabe prescribed burn, Cave Creek and Seven Springs Wash, Cave Creek Ranger District. U.S. Forest Service, Phoenix, AZ. 14pp.

___, and J. N. Rinne. 1996. Effects of floods on fishes in the upper Verde River, Arizona. Proceedings of the Desert Fishes Council 28:80-81.

___, and S. E. Stefferud. 1994. Status of Gila topminnow and results of monitoring of the fish community in Redrock Canyon, Coronado National Forest, 1979-1993. Pages 361-369 *in* DeBano, L. F., P. F. Ffolliott, A. Ortega-Rubio, G. J. Gottfried, R. H. Hamre, and C. B. Edminster, eds., Biodiversity and Manage. of the Madrean Archipelago: the Sky Islands of the Southwestern U.S. and Northwestern Mexico, General Tech. Report RM-GTR-264, USDA Forest Service, Rocky Mountain Forest and Range Exp. Station, Ft. Collins, CO.

___, and ___. 2001. Summary of management options and vision statement for Redrock Canyon watershed, Sierra Vista Ranger District, Coronado National Forest, USDA Forest Service, Santa Cruz County, Arizona. USDA Forest Service, Tonto National Forest, Phoenix (JAS), USFWS, Ecological Services Field Office, Phoenix (SES).

Stefferud, S. E. 1989. Field notes from Little Mud Spring and vicinity, Tonto National Forest, Arizona. July 7 1989, USFWS, Phoenix. 3pp.

___, and M. R. Meador. 1998. Interbasin water transfers and nonnative aquatic species movement: a brief case history review. Proceedings of the Desert Fishes Council XXX:47.

Stewart, I. T., D. R. Cayan, M. D. Dettinger. 2004. Changes in snowmelt runoff timing in western North American under a 'business as usual' climate change scenario. Climatic Change 62: 217-32.

Stine, S. 1994. Extreme and persistent drought in California and Patagonia during mediaeval time. Nature 369:546-549.

Storfer, A. 2003. Emerging disease and amphibian declines. Pages 42-43 *in* Program Book for the 2003 Joint Meeting of Icthyologists and Herpetologists, Manaus, Amazonas, Brazil (abstract).

___, S. G. Mech, M. W. Reudink, R. E. Ziemba, J. Warren, and J. P. Collins. 2004. Evidence for introgression in the endangered tiger salamander, *Ambystoma tigrinum stebbinsi* (Lowe). Copeia (2004)4:783-796.

Stromberg, J. C., and M. K. Chew. 1997. Herbaceous exotics in Arizona's riparian ecosystems. Desert Plants 11-17.

Sublette, J. E., M. D. Hatch, and M. Sublette. 1990. The fishes of New Mexico. University of New Mexico Press, Albuquerque, New Mexico. 393pp.

Suhre, D. O., P. C. Rosen, and C. R. Schwalbe. 2004. Brief summary of a ranid frog survey in the western Pajarito Mountains, 2004. Rept. to the Coronado Nat'l. Forest, Tucson. 5pp.

Swift, C. C., R. R. Haglund, M. Ruiz, and R. N. Fisher. 1993. The status and distribution of the freshwater fishes of southern California. Bull. Southern Cal. Acad. Sci. 92(3):101-167.

Tibbets, C. A. 1992. Allozyme variation in populations of the spikedace *Meda fulgida* and the loach minnow *Tiaroga cobitis*. Proc. of the Desert Fishes Council 24:37.

___. 1993. Patterns of genetic variation in three cyprinid fishes native to the American southwest. MS Thesis, Arizona State University, Tempe, AZ. 127pp.

Thomas, P. A., and P. M. Room. 1986. Taxonomy and control of *Salvinia molesta*. Nature 320:581-584.

Tyus, H. M., and J. F. Saunders, III. 2000. Nonnative fish control and endangered fish recovery: lessons from the Colorado River. Fisheries 25(9):17-24.

U.S. Army Corps of Engineers. 1997. Rio Salado, Salt River, Arizona. Draft feasibility report and draft environmental impact statement. Los Angeles Dist., Southern Div., Los Angeles.

U.S. Bureau of Reclamation. 1990. Garrison Diversion Unit joint technical committee report to the United States-Canada consultative group (including the Biology Task Force report). Bureau of Reclamation, Billings, Montana. 57pp.

___. 1994. Biological assessment – transport of nonnative fishes into the Santa Cruz River basin by the Central Arizona Project aqueduct. USBR, Phoenix. 31pp.

___. 1996. Biological assessment for Central Arizona Project fish transfers to the Santa Cruz River subbasin. USBR, Phoenix. 21pp+figs.

___. 2001. Final biological assessment; transportation and delivery of Central Arizona Project water to the Gila River basin, Arizona and New Mexico. USBR, Phoenix. 30pp.+figs.

___. 2006. Biological assessment: Transportation and delivery of Central Arizona Project water to the Gila River basin; Reinitiation of consultation for evaluation of impacts to two newly.

listed aquatic species and inclusion of the Santa Cruz River subbasin into the action area. Phoenix Area Office, U.S. Bureau of Reclamation, Glendale, Arizona. 51pp.

U.S. Fish and Wildlife Service. 1983. Central Arizona water control study - Formal consultation under section 7 of the Endangered Species Act, biological opinion. 2-21-83-F-10, USFWS, Albuquerque, NM. 13pp.

___. 1984a. Sonoran topminnow recovery plan. USFWS, Albuquerque, New Mexico. 56pp.

___. 1984b. Biological opinion - Central Arizona Project - New Waddell Element of Plan 6. 2-21-83-F-10, November 15, 1984, amended July 2, 1997, Albuquerque, NM. 8pp.

___. 1991a. Loach minnow recovery plan. Albuquerque, New Mexico. 38pp.

___. 1991b. Spikedace recovery plan. Albuquerque, New Mexico. 38pp.

___. 1993a. Colorado River endangered fishes critical habitat. Draft Biological Support Document. Utah/Colorado Field Office, Salt Lake City, UT. 225pp.

___. 1993b. Desert pupfish recovery plan. Albuquerque, NM. 67pp.

___. 1994. Final biological opinion on the transportation and delivery of Central Arizona Project water to the Gila River Basin (Hassayampa, Agua Fria, Salt, Verde, San Pedro, middle and upper Gila Rivers, and associated tributaries) in Arizona and New Mexico. 2-21-90-F-119, USFWS, Albuquerque, NM. 41pp.

___. 1995. Yaqui fishes recovery plan. U.S. Fish & Wildl. Service, Albuquerque, New Mexico.

___. 1995b. Biological evaluation, intra-service section 7 evaluations, re fish stocking activities by Fishery Resources on the San Carlos and Fort Apache Reservations. December 4, 1995, USFWS, Pinetop, AZ.

___. 1997. Biological opinion for the San Bernardino National Wildlife Refuge, Asian tapeworm eradication. 2-21-97-F-051. July 7, 1997. USFWS, Albuquerque, NM. 20 pp.

___. 1998a. Biological opinion on the Cienega Creek stream restoration project. Memorandum, June 3 (2-21-98-F-373) from Acting Field Supervisor, Arizona Ecological Services Field Office, USFWS, to Manager, Tucson Field Office, BLM, Phoenix. 51pp.

___. 1998b. Razorback sucker recovery plan. Mountain-Prairie Region, Denver, CO. 81pp.

___. 1999a. Letter to Arizona Game and Fish Department agreeing to discontinuation of monitoring for rainbow trout stocking in the Verde River. March 8, 1999. USFWS. Albuquerque, NM. 2pp.

___. 1999b. Draft biological opinion on impacts of the Central Arizona Project to Gila topminnow in the Santa Cruz River subbasin through introduction and spread of nonnative aquatic species. 2-21-91-F-406, June 11 1999, Albuquerque, NM. 60pp.

___. 2001a. Section 7 informal consultation concurrence for stocking rainbow trout and roundtail chub into Rio Salado Town Lake. Ariz. Ecological Service Office, Phoenix. 9pp.

___. 2001b. Letter to Arizona Game and Fish Department re: exemption for live crayfish transport and possession for bait and human consumption in Yuma and western La Paz Counties, AZ. Ariz. Ecological Service Office, Phoenix. 2pp.

___. 2001c. Final revised biological opinion on the transportation and delivery of Central Arizona Project water to the Gila River basin (Hassayampa, Agua Fria, Salt, Verde, San Pedro, middle and upper Gila Rivers and associated tributaries) in Arizona and New Mexico and its potential to introduce and spread nonnative aquatic species. 2-21-90-F-119a, Arizona Ecological Service Office, Phoenix.

___. 2001d. Background information on the Central Arizona Project and nonnative aquatic species in the Gila River basin. Arizona Ecological Service Office, Phoenix.

___. 2001e. Biological Opinion for interim surplus criteria, Secretarial Agreements, and conservation measures on the lower Colorado River, Lake Mead to the Southerly International Boundary, Arizona, California, and Nevada. Arizona Ecological Services Office, Phoenix. 96pp

___. 2002a. Razorback sucker (*Xyrauchen texanus*) recovery goals. Amendment and supplement to the razorback sucker recovery plan. Mountain-Prairie Region, Denver, CO. 78pp.+appendix.

___. 2002b. Sonora tiger salamander (*Ambystoma tigrinum stebbinsi*) recovery plan. U.S. Fish and Wildlife Service, Region 2, Albuquerque, NM.

___. 2002c. Background information on the Central Arizona Project and nonnative aquatic species in the Santa Cruz River subbasin. Ariz. Ecological Service Off., Phoenix. 106pp.

___. 2007. Chiricahua leopard frog (*Rana chiricahuensis*) recovery plan. Region 2, Albuquerque, NM.

U.S. Geological Survey. 2001. Florida Carribean Science Center. Nonindigenous aquatic species. USGS, Biological Resources Division. Gainsville, FLlorida. http://nas.er.usgs.gov/fishes

USGCRP (U.S. Global Change Research Program). 2001. Preparing for a changing climate: the potential consequences of climate variability and change – Southwest. A Report of the Southwest Regional Assessment Group for the U.S. Global Change Research Program. Institute for the Study of Planet Earth, University of Arizona, Tucson. 60pp.

University of Arizona. 1998. Arizona aquaculture. Http://ag.arizona.edu/azaqua/farmlist.txt.

Unmack, P., G. W. Knowles, and M. Baltzly. 2003. Green sunfish impacts on Gila chub, a natural experiment thanks to a waterfall. Abstract *in* 2003 Desert Fishes Council Meeting, Furnace Creek, Death Valley National Park, California, November 20-23, 2003.

Utah Department of Natural Resources. 1990. Assessment of a forage fish introduction into Lake Powell. Salt Lake City, Utah. 51pp.

Velasco, A. L. 1997. Fish population response to variance in stream discharge, Aravaipa Creek, Arizona. MS Thesis, Arizona State University, Tempe, Arizona. 57pp.

Vives, S. P., and W. L. Minckley. 1990. Autumn spawning and other reproductive notes on loach minnow, a threatened cyprinid fish on the American southwest. Southwestern Naturalist 35:451-454.

Volpe, J. P., E. B. Taylor, D. W. Rimmer, and B. W. Glickman. 2000. Evidence of natural reproduction of aquaculture-escaped Atlantic salmon in a coastal British Columbia River. Conservation Biology 14(3):899-903.

Varela-Romero, A., C. Galindo-Duarte, E. Sauceda-Monarque, L. S. Anderson, P. Warren, S. Stefferud, J. Stefferud, S. Rutman, T. Tibbits, and J. Malusa. 1992. Re-discovery of *Gila intermedia* and *G. purpurea* in northern Sonora, Mexico. Page 33 *in* Hendrickson, D. A., ed., Proc. of the Desert Fishes Council, Vol. XXII and XXIII, 1990 and 1991 Annual Symp., and Index for Volumes XVI Through XXIII, Desert Fishes Council, Bishop, CA.

Voeltz, J. B., and R. H. Bettaso. 2003. 2003 status of the Gila topminnow and desert pupfish in Arizona. Nongame and Endangered Wildlife Program, Technical Report 226, Arizona Game and Fish Department, Phoenix. 124pp.

Weedman, D. A. 1999. Gila topminnow, *Poeciliopsis occidentalis occidentalis*, draft revised recovery plan. Ariz. Ecological Service Office, U.S. Fish and Wildlife Service, Phoenix.

___, A. L. Girmendonk, and K. L. Young. 1996. Status review of Gila chub, *Gila intermedia*, in the United States and Mexico. Tech. Rept. 91, Ariz. Game & Fish Dept., Phoenix. 120pp.

___, P. Sponholtz, and S. Hedwall. 2005. Fossil Creek native fish restoration project. Arizona Game and Fish Department, Phoenix Arizona.

___, and K. L. Young. 1997. Status of the Gila topminnow and desert pupfish in Arizona. Nongame and Endangered Wildlife Program, Technical Report 118, Arizona Game and Fish Department, Phoenix. 141pp.

Welcomme, R. L. 1988. International introductions of inland aquatic species. FAO Fisheries Tech. Paper 294, Food and Agriculture Org. of the United Nations (FAO), Rome. 318pp.

Welker, T. L., and P. B. Holden. 2003. Razorback sucker studies on Lake Mead, Nevada and Arizona. 2002-2003 Annual Rept. to Southern Nevada Water Authority, Las Vegas. 58pp.

___, and ___. 2004. Razorback sucker studies on Lake Mead, Nevada and Arizona. 2003-2004 Annual Report to Southern Nevada Water Authority, Las Vegas. 46pp.

Westman, W. E. 1990. Park management of exotic plant species: Problems and issues. Conservation Biology 4(3):251-260.

Williams, J. E., D. B. Bowman, J. E. Brooks, A. A. Echelle, R. J. Edwards, D. A. Hendrickson, and J. J. Landye. 1985. Endangered aquatic ecosystems in North American deserts with a list of vanishing fishes of the region. J. Arizona-Nevada Academy of Sci. 20(1):1-62.

Wood, T. 1991. Results of 1991 amphibian monitoring on the Coronado National Forest. Report to the Coronado National Forest and the Nature Conservancy, Tucson.

Wright, B. R., and J. A. Sorenson. 1995. Feasibility of developing and maintaining a sport fishery in the Salt River Project canals, Phoenix, Arizona. Technical Report 18, Arizona Game and Fish Department, Phoenix. 102pp.

Wright, A. H., and A. A. Wright. 1949. Handbook of frogs and toads of the United States and Canada. Third edition, Comstock Publishing Association, Ithaca, New York.

Young, K. L., and R. H. Bettaso. 1994. Native fishes of Sycamore, Cave, and Silver Creeks, Tonto National Forest, Arizona. Arizona Game and Fish Department, Phoenix. 46pp.

___, and M. A. Lopez. 1995. Fall fish count summary: 1988-1994. Nongame Technical Report 81, Arizona Game and Fish Department, Phoenix. 119pp.