
PART I - ADMINISTRATIVE

Section 1. General administrative information

Title of project

Inventory Wildlife Species & Populations Of The Owyhee Basin, D.V.I.R

BPA project number: 20092

Contract renewal date (mm/yyyy): **Multiple actions?**

Business name of agency, institution or organization requesting funding

Shoshone-Paiute Tribes of the Duck Valley Indian Reservation

Business acronym (if appropriate) Sho-Pai Tribes - DVIR

Proposal contact person or principal investigator:

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NPPC Program Measure Number(s) which this project addresses

Section (§) 2.1; § 2.1A; § 2.1A1; § 2.2A; § 2.2H; § 2.2E6; § 11.1; § 11.2D; § 11.3A; § 11.3C; § 11.3G; § 11.5; § 11.5A;

FWS/NMFS Biological Opinion Number(s) which this project addresses

FERC relicensing considerations of the Hells Canyon Complex relative to the 1999 FCRPS (Hydropower Operations) Biological Opinion, NMFS

Other planning document references

CBFWA-Resident Fish Managers (1997) Multi-Year Implementation Plan

Federal MOA on Bonneville Power Administration Fish & Wildlife restoration funding

Department of Energy / BPA Tribal Policy

State of Idaho and State of Nevada Fish Management Plans affecting the Owyhee Basin

Independent Scientific Group (1996) Return to the River / (1997) Review of Columbia Basin Fish and Wildlife Program

NPPC Regional Multi-Species Framework Project/Process/Documents

Short description

Conduct an inventory of all wildlife species present, abundance estimates of bird & mammal populations, and quantification of habitat units on the Duck Valley Indian Reservation -- based on a systematic survey & statistically sound sampling design.

Target species

All terrestrial wildlife species (i.e., birds, mammals, reptiles, amphibians) of the Owyhee Basin, DVIR component -- with an emphasis on ecologically sensitive & utilized species

Section 2. Sorting and evaluation

Subbasin

Owyhee

Evaluation Process Sort

CBFWA caucus	Special evaluation process	ISRP project type
Mark one or more caucus	If your project fits either of these processes, mark one or both	Mark one or more categories
<input type="checkbox"/> Anadromous fish <input type="checkbox"/> Resident fish <input checked="" type="checkbox"/> Wildlife	<input type="checkbox"/> Multi-year (milestone-based evaluation) <input type="checkbox"/> Watershed project evaluation	<input type="checkbox"/> Watershed councils/model watersheds <input type="checkbox"/> Information dissemination <input type="checkbox"/> Operation & maintenance <input type="checkbox"/> New construction <input checked="" type="checkbox"/> Research & monitoring <input checked="" type="checkbox"/> Implementation & management <input checked="" type="checkbox"/> Wildlife habitat acquisitions

Section 3. Relationships to other Bonneville projects

Umbrella / sub-proposal relationships. List umbrella project first.

Project #	Project title/description
20536	Develop Management Plan & Assess Fish & Wildlife Of The Owyhee Basin, DVIR
20040	Develop a Fish & Wildlife Management Plan for the Owyhee Basin, DVIR
20041	Develop a Fish & Wildlife Conservation Law Enforcement Plan, DVIR
20094	Fish Assess Resident Fish Stocks Of The Owyhee Basin, DVIR
9701100	Enhance and Protect Habitat and Riparian Areas on DVIR
	Implement Fishery Stocking Program Consistent with Native Fish Conservation
20092	Inventory Wildlife Species & Populations Of The Owyhee Basin, DVIR
20093	Evaluate the Feasibility for Anadromous Fish Reintroduction in the Owyhee

Other dependent or critically-related projects

Project #	Project title/description	Nature of relationship
9701100	Enhance and Protect Habitat & Riparian Areas on the Duck Valley Indian Res	Habitat enhancement is a critical need for comprehensive fish & wildlife management of the Owyhee Basin DVIR
9501500	Lake Billy Shaw Wetlands Catch & Release Fishery O&M	A new BPA- funded reservoir was completed in 1998 on the DVIR -- the development of its fisheries needs to be integrated within a comprehensive fish management plan.
8815600	Stocking Fish in Lakes and Streams on the Duck Valley Indian Reservation	Stocking of hatchery trout in reservoirs and streams has been implemented for many years to provide fisheries and economic benefits to the DVIR -- this program needs to be re-evaluated & integrated in the rationale of a comprehensive fish management plan.
9500600	Shoshone-Bannock/Shoshone-Paiute Joint Culture Facility	A BPA-funded fish culture facility is being developed to provide trout production to supplement fisheries on Duck Valley and Fort Hall reservations. Its operation should be coordinated with the comprehensive Owyhee Basin resident fish management plan.

Section 4. Objectives, tasks and schedules

Past accomplishments

Year	Accomplishment	Met biological objectives?
	Not Applicable -- New Project	

Objectives and tasks

Obj 1,2,3	Objective	Task a,b,c	Task
1	Conduct a wildlife inventory & habitat assessment of the DVIR component of the Owyhee River Basin.	a	Consult with wildlife scientist and hire project leader to design and implement the Owyhee Basin wildlife population assessment study. (Year 1)
		b	Coordinate with relevant co-management entities (state, federal, and tribal), conduct a literature review, and compile all available data on wildlife distribution, abundance and ecological relationships in the Owyhee River Basin. (Year 1)
		c	Develop statistically valid field sampling methods, protocol and sampling design for the wildlife population inventory & habitat assessment. (Year 1)
		d	Procure any additional equipment and supplies needed to implement the wildlife inventory. (Year 1)
		e	Implement the Owyhee Basin wildlife inventory and habitat assessment based on the study design developed in Task 1c. (Years 2-3)
		f	Document findings in annual reports and provide input to the Owyhee Basin-DVIR strategic fish & wildlife management plan. (Years 1-4)
2	Develop a GIS mapping capability for analysis and summary of population distribution and abundance of wildlife populations & essential habitat in the Owyhee Basin – in coordination with the proposed fish stock assessment study.	a	Consult with a GIS expert and cooperating entities (tribal, state & federal fish & wildlife agencies) on the development of a PC-based GIS mapping system. (Year 1)
		b	Procure computer equipment software and/or services needed to conduct GIS mapping of wildlife assessment data within the Owyhee River Basin. (Year 1)

		c	Hire staff and/or obtain necessary training and/or services from cooperative entity to enable GIS mapping of wildlife distribution within the Owyhee River Basin. (Year 1).
		d	Implement GIS mapping of wildlife populations & their essential habitat within the Owyhee River Basin. (Years 2-4)
		e	Coordinate all the previous Tasks with the resident fish stock assessment project to maximize cost-effectiveness. (Years 1-4)
3	Develop a baseline to monitor and evaluate the status of wildlife populations on the DVIR component of the Owyhee Basin with respect to habitat availability, ecological factors and mitigation plans.	a	Document the current wildlife species composition, distribution and abundance within the Owyhee River Basin – with emphasis on ecologically sensitive taxa and wildlife populations utilized by the Shoshone-Paiute tribal members for subsistence. (Years 1-4)
		b	Relate the current wildlife species composition, distribution and abundance within the Owyhee River Basin to limiting ecological factors, available habitat and watershed conditions. (Year 4)
		c	Develop computer databases for wildlife population assessment variables and habitat conditions -- as a basis for evaluation of future long-term trends. (Years 1-4)
		d	Utilize the information on wildlife population assessment to provide a rationale for overall wildlife mitigation and implementation of specific restoration projects within the context of a comprehensive fish & wildlife management framework. (Years 2-4)

Objective schedules and costs

Obj #	Start date mm/yyyy	End date mm/yyyy	Measureable biological objective(s)	Milestone	FY2000 Cost %
1	1/2000	12/2003			60.00%
2	1/2000	12/2003			15.00%
3	1/2000	12/2003			25.00%
				Total	100.00%

Schedule constraints

Special collection or "take" permits may be required for sensitive or ESA listed species

Completion date

2003

Section 5. Budget

FY99 project budget (BPA obligated): \$0

FY2000 budget by line item

Item	Note	% of total	FY2000
Personnel	Project Leader- Wildlife Biologist (1.0 FTE), part time technician (0.5 FTE)	%40	75,000
Fringe benefits	@30%	%12	22,500
Supplies, materials, non-expendable property	Computer system, sampling equipment, and field supplies	%10	18,000
Operations & maintenance	GSA vehicle lease & maintenance costs	%5	9,500
Capital acquisitions or improvements (e.g. land, buildings, major equip.)	none	%0	
NEPA costs	none	%0	
Construction-related support	none	%0	
PIT tags	# of tags: none	%0	
Travel	Attend regional coordination meetings	%4	7,500
Indirect costs	@26.6%	%19	35,245
Subcontractor	Consultant: wildlife scientist with subspecies identification & statistical survey design expertise	%10	18,240
Other		%0	

TOTAL BPA FY2000 BUDGET REQUEST	\$185,985
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Cost sharing

Organization	Item or service provided	% total project cost (incl. BPA)	Amount (\$)
	None identified at this time; we will seek cooperative studies/support with relevant state & federal agencies	%0	
		%0	
		%0	
		%0	
Total project cost (including BPA portion)			\$185,985

Outyear costs

	FY2001	FY02	FY03	FY04
Total budget	\$191,565	\$197,311	\$75,000	

Section 6. References

Watershed?	Reference
<input type="checkbox"/>	{refer to the umbrella proposal ShopaiGD1.doc}
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

PART II - NARRATIVE

Section 7. Abstract

The purpose of this study is to conduct a systematic assessment of the species composition, abundance, community structure and ecological relationships of wildlife populations inhabiting the Duck Valley Indian Reservation (DVIR). A significant component of the Owyhee Basin is within the 284,000 acre Reservation, Idaho & Nevada. Before construction of the Hells Canyon complex (1958-67), the biotic community of the Owyhee watershed consisted of anadromous & resident fishes and diverse wildlife populations. The complete extirpation of anadromous fish from the Owyhee Basin has detrimentally impacted its wildlife community and probably caused the elimination of species that depended on the salmon for their primary food supply. The ISRP (1998) commented that a wildlife inventory of the Owyhee Basin was a

“laudable goal”. The Councils Program (§11) calls for wildlife & habitat assessments as a prerequisite to wildlife mitigation. The objectives of this project include: identification of wildlife species (including and rare or sensitive taxa), enumeration of major wildlife populations, quantification of essential habitat, and evaluation of limiting ecological factors. The general approach will consist of three phases:

- ◆ Phase 1. Develop statistically sound methods, protocol and sampling design.
- ◆ Phase 2. Conduct field sampling, develop a computerized wildlife population inventory & habitat database, and provide input to the DVIR fish & wildlife management plan.
- ◆ Phase 3. Document the results of the wildlife population assessment, conduct GIS mapping of major wildlife species and their essential habitats in the Owyhee Basin, recommend conservation & restoration measures, and completion of the final report.

Section 8. Project description

a. Technical and/or scientific background

An overall description of *technical and scientific background* for comprehensive fish & wildlife enhancement on the Duck Valley Indian Reservation is provided in the “umbrella” proposal form – ShopaiGD1.doc. The additional project-specific information relating to the sub-proposal -- “*Inventory Wildlife Species & Populations of the Owyhee Basin, DVIR*” -- follows.

The entire Owyhee Basin – encompassing the Duck Valley Indian Reservation (DVIR) -- is classified as a “*Blocked Area*” in the NPPC Fish and Wildlife Program (NPPC 1995; Section 10.8). The Owyhee Basin is in the upper Snake River Basin -- upstream from the Hells Canyon Complex that has completely blocked anadromous fish migrations for over 40 years (Hells Canyon Dam 1967; Oxbow Dam 1961; Brownlee Dam 1958). Prior to hydropower development the Owyhee Basin supported a large diverse community of native anadromous and resident fish populations. The complete extirpation of anadromous fish stocks from this area reduced the native salmonid species assemblage and greatly impacted the culture, religion and livelihood of the Shoshone and Paiute tribes that were dependent upon the once abundant anadromous fish & wildlife resources. Resident fish and wildlife species in the subbasin were also impacted through lost productivity (absence of nutrient component attributable to anadromous fish) and habitat degradation relating to land-use practices (agriculture, grazing, logging, mining and municipal development) facilitated by hydroelectric power development in the region. Loss of the once abundant salmonid runs undoubtedly impacted the food supply of many wildlife populations and impaired the functioning of the ecosystem as a whole. It is likely that top carnivores such as osprey, bald eagles, wolves, wolverines, cougars, black bears, and grizzly bears were detrimentally impacted or extirpated by the elimination of the anadromous fish food resource.

The Duck Valley Indian Reservation incorporates 284,000 acres in heart of the Owyhee Basin and is inhabited by numerous species of mammals, migratory and resident birds, amphibians and reptiles. Known wildlife species include: pronghorn antelope, mule deer,

elk, bobcat, coyote, least chipmunk, sagebrush vole, deer mouse, ground squirrel, white-tailed jackrabbit, black-tailed jackrabbit, Canada geese, snow geese, pintail, lesser scaup, northern shoveler, avocet, white-faced ibis, western sandpiper, red-tailed hawk, northern harrier, great horned owl, golden eagle, sage grouse, California quail, American kestrel, rough-legged hawk, Great Basin rattlesnake, valley garter snake, Pacific tree frog, Great Basin gopher snake, and horned lizard (BPA 1997; Billy Shaw Dam and Reservoir EA). Fish & wildlife agencies identified the following as potential wildlife species of concern: spotted frog, pigmy rabbit, spotted bat, small-foot myotis, long-eared myotis, fringed myotis, long-legged myotis, Yuma myotis, pale Townsend's big-eared bat, Pacific Townsend's big-eared bat, Northern goshawk, western burrowing owls, Ferruginous hawk, black tern, least bittern, and white-faced ibis. Prior to the filling of Billy Shaw Reservoir, the primary area for waterfowl production was the wetlands adjacent to Blue Creek (Burge and Miller 1993). Limited observations been conducted on the DVIR component of the Owyhee Basin in recent years in conjunction with habitat enhancement work (V. Pero, Shoshone-Paiute Tribes, personal communication) however, wildlife species composition and abundance has not been assessed in a systematic manner. The ISRP (1998) commented that a wildlife inventory of the Owyhee Basin is a "laudable goal". Northwest Power Planning Council requires a systematic inventory of wildlife populations and quantification of their available habitat as a prerequisite to wildlife mitigation. A wildlife & habitat assessment is needed so that species restoration opportunities can be identified and an overall wildlife mitigation plan for the Owyhee Basin can be formulated and prioritized in regional multi-species planning efforts.

The goal of this study is to conduct a systematic assessment of the status of wildlife populations of the DVIR portion of the Owyhee Basin watershed in relation habitat units available. This study will develop a standardized methodology, protocol and a statistically sound sampling design to systematically assess the species composition, spatial and temporal distribution, relative abundance, and habitat utilization of wildlife populations in the Owyhee River Basin. Standardized sampling methods and strict sampling protocols are required to reduce variation among samples and to detect changes in relative abundance over time. Several sampling methods will be considered and utilized (visual identification & counts, photography and video, and trapping) in order to adequately sample all terrestrial wildlife species comprising the community. Special consideration will be given to non-lethal methods, and stratified times and locations – for representative samples of salmonid populations – in order to achieve a valid assessment of current baseline species composition and population abundance. This statistically valid baseline will be a prerequisite for subsequent monitoring of population trends – derived from the standardized sampling conducted in subsequent years. The methods developed and refined in this study may also be a basis for similar surveys in other tributary subbasins of the Columbia River.

The value of wildlife inventories for monitoring and evaluation purposes is dependent upon a statistically valid sampling design. A sampling design based on stratified random sampling generally allows unbiased estimates of wildlife populations, temporal and spatial distribution, and relative abundance. A rigorous sampling plan also allows for explicit identification of assumptions, developing a-priori hypotheses; for example that

changes in specific wildlife population abundance levels are associated with the amount of available habitat. A stratified sampling design can reduce the overall variance of various statistical estimates and increase the precision of estimated population parameters. Initial surveys can be utilized to estimate sample sizes needed to detect statistically significant differences in key population variables. Subsequent wildlife population assessments, based on standardized methodology, will enable the statistically valid determination of long term population trends.

Quantification of wildlife habitat will be assessed using “habitat units” and methodology developed by the Northwest Power Planning Council and the Wildlife Caucus of the Columbia Basin Fish & Wildlife Authority. The 1995 Fish and Wildlife Program amendments, Section 11.3C states: *“The Council endorses the use of habitat units as the preferred unit of measurement for mitigation accounting unless parties to an agreement develop another method that in the Council’s opinion, adequately takes into account both the quality and quantity adequate to mitigate for the identified losses”*.

The Council’s Fish & Wildlife Program recognizes the importance of biodiversity of both fish and wildlife – to protect the integrity and sustainability of ecosystems comprising the Columbia Basin. The current status of population structure and community interrelationships of resident fish & wildlife populations in the Columbia Basin has not been scientifically documented in many tributary subbasins and therefore the holistic ecosystem relationships are not well understood. We are proposing to develop a protocol for inventory of wildlife and their essential habitats in the Owyhee Basin. We plan to contract with scientists to assist in the development of sampling design & protocol, quantification of habitat units, and identification of wildlife populations to the lowest possible taxonomic units. This study will provide valuable baseline information on the species composition, community structure, and ecological relationships of wildlife populations in a remote and relatively pristine portion of the Columbia River Basin, i.e., the Owyhee Basin watershed. Thus the proposed work can make significant contributions to the knowledge of the biodiversity of wildlife communities in the Columbia Basin.

The general approach of the proposed study consists of three phases:

- ◆ **Phase 1.** Develop statistically sound methods, protocol and sampling design wildlife population inventory and habitat assessment. Retain personnel (qualified staff and consulting scientists), and procure needed computer and field sampling equipment. Take preliminary samples for refinement of methods and overall study design. Document findings in an annual report and provide input to the Owyhee Basin-DVIR strategic fish & wildlife management plan. {Year 1}.
- ◆ **Phase 2.** Implement field sampling, collect data in a systematic electronic based format, and develop a wildlife inventory computer data base. Document findings in annual reports and provide input to the Owyhee Basin-DVIR strategic fish & wildlife management plan. {Years 2 and 3}.
- ◆ **Phase 3.** Conduct statistical data summaries, evaluate wildlife population abundances and limiting factors, quantify available habitat units for each species of management concern, develop GIS mapping of wildlife populations in the Owyhee Basin, and document findings in annual and final reports. Transfer results of the wildlife

inventory to a wildlife mitigation plan, including proposals for future project implementation -- within the overall fish & wildlife management plan for the Owyhee Basin, DVIR component {Year 4}.

b. Rationale and significance to Regional Programs

An overall description of *rationale and significance to regional programs* is provided in the “umbrella” proposal form – ShopaiGD1.doc. Sections 11 of the Councils Fish & Wildlife Program addresses specific measures related to the proposed “*Inventory Wildlife Species & Populations of the Owyhee Basin, Duck Valley Indian Reservation*”. Brief summaries of the specific sections (§) from the Council’s Fish and Wildlife Program (NPPC 1995) relating directly and indirectly to this wildlife inventory sub-proposal are presented below:

§ 2.1: Systemwide Goal: A healthy Columbia River Basin.

§ 2.1A: Assess ecological health of Columbia River Basin.

§ 2.1A1: Explore methods to assess trends in ecosystem health.

§ 2.2A: Support native species in native habitats.

§ 2.2H: The need to learn from implementation (monitoring & evaluation).

§ 2.2E6: Criteria for establishing constraints on hydroproject operations, including (a) protection and rebuilding of weak native fish stocks and resident fish substitutions, (b) protection of tribal rights to fish at usual and accustomed fishing places and ceded areas.

§ 11.1: Wildlife Program goal: Fully mitigate for wildlife losses from hydropower in the Columbia River basin

§ 11.2D: Mitigation plans and agreements.

- Have measurable objectives, e.g. specific number of habitat units.
- Where practical, mitigate losses in-place, in-kind.
- Protect or enhance natural ecosystems and species diversity over the long term.
- Address special wildlife losses in areas that formerly had salmon and steelhead runs that were eliminated by hydroelectric projects (for example, societal and tribal wildlife losses).

§ 11.3A: Identify measures based on losses.

§ 11.3C: Develop statements of habitat losses and gains due to hydropower operation.

§ 11.3G: Develop long term agreements for all wildlife mitigation.

§ 11.5: Monitor and evaluate wildlife efforts at non-federal projects (e.g., Hells Canyon Complex).

§ 11.5A: Mitigation considerations in dam licensing decisions. (e.g., FERC).

c. Relationships to other projects

Currently the Shoshone-Paiute Tribe does not have any other wildlife enhancement projects in place. The following BPA-funded projects are ongoing during FY1999-2000 for habitat restoration and resident fish mitigation and enhancement on the DVIR. The

following summaries describe how these projects are interrelated with the proposed subproposal: *“Inventory Wildlife Species & Populations of the Owyhee Basin, DVIR”*.

BPA-funded Project 8815600 “Stocking Fish in Lakes and Streams on the Duck Valley Indian Reservation” has been ongoing since 1988. Trout stocking required as mitigation for lost anadromous and resident fish production caused by the construction of the Hells Canyon Complex. A wildlife inventory will document the presence, spatio-temporal distribution and relative abundance of predatory birds and mammals that may cause mortality to stocked trout.

Project 9701100 “Enhance and Protect Habitat & Riparian Areas on the Duck Valley Indian Reservation” [NPPC measure 10.8C.5] Our ongoing study evaluates and restores existing habitat conditions within the Owyhee River watershed. This study provides data needed to evaluate suitability of water sources, wetlands, and riparian zones essential for the existence, enhancement and perpetuation of wildlife populations on the DVIR and surrounding areas.

Project 9501500 “Lake Billy Shaw Wetlands Catch & Release Fishery O&M” [NPPC measure 10.8C; 10.8C4] A new BPA-funded dam was completed in 1998 on the DVIR and Lake Billy Shaw will begin filling in 1999. This project will provide wetlands habitat for many wildlife species, including migratory waterfowl. Wildlife considerations need to be integrated within a comprehensive fish & wildlife management plan

Additional projects are proposed for FY 2000 -- under an umbrella proposal (ShopaiGD1.doc) -- that are relevant to the implementation of this wildlife inventory project:

Develop a Fish & Wildlife Management Plan for the Owyhee Basin, DVIR (ShopaiGD2.doc)

Developing a comprehensive resource management plan for the DVIR incorporates issues, studies, and project implementation necessary for wildlife mitigation.

Develop a Fish & Wildlife Conservation Law Enforcement Plan, DVIR (ShopaiGD3.doc)

An effective Fisheries Enforcement Program is needed to protect and enhance wildlife populations. Conversely a wildlife inventory will provide game wardens with information on sensitive wildlife species present, their temporal and spatial distribution, and specific habitats that need protection in order to enhance wildlife diversity and production.

Assess Resident Fish Stocks Of The Owyhee Basin, DVIR (ShopaiGD4.doc)

This proposed project will assess the status of existing resident fish populations. Distribution and abundance of resident fish populations is relevant to food supply of predatory birds and mammals. Conversely, the wildlife inventory may identify possible

sources of mortality to sensitive endemic fish stocks proposed for listing under the ESA, e.g. bull trout and redband trout.

d. Project history (for ongoing projects)

New Project – Not Applicable

e. Proposal objectives

The purpose of this project is to inventory the terrestrial wildlife species, populations and habitats of the DVIR component of the Owyhee River Basin – as a basis for future wildlife mitigation, restoration and conservation efforts. The primary objectives of this subproposal are:

Objective 1. Conduct a wildlife inventory & habitat assessment of the DVIR component of the Owyhee River Basin.

Objective 2. Develop a GIS mapping capability for analysis and summary of population distribution and abundance of wildlife populations & essential habitat in the Owyhee Basin – in coordination with the proposed fish stock assessment study.

Objective 3. Develop a baseline to monitor and evaluate the status of wildlife populations on the DVIR component of the Owyhee Basin with respect to (a) population distribution and abundance, (b) potential limiting ecological factors, (c) habitat and watershed conditions, (d) long-term trends, and (e) rationale for restoration project implementation and wildlife mitigation within the context of a comprehensive fish & wildlife management framework.

f. Methods

The overall strategic planning and adaptive program management for an integrated suite of fish and wildlife enhancement projects on the Duck Valley Indian Reservation (DVIR) are described in the “umbrella project” (refer to ShopaiGD1.doc). It will incorporate two related approaches to achieve an integrated fish & wildlife management plan and project implementation based on scientific principles.

- ◆ First, develop an internally consistent and comprehensive Shoshone-Paiute strategic plan for the restoration of fish, wildlife, and watershed resources on the Duck Valley Indian Reservation.
- ◆ Second, coordinate with state, regional, and federal planning processes (e.g., Idaho & Nevada fish management plans, NPPC Fish & Wildlife Program, Multi-Species Framework, ESA recovery plans, etc.) to develop a management framework that

maximizes opportunities cooperative efforts and successful restoration of the Owyhee ecosystem.

A comprehensive monitoring and evaluation (M&E) plan will be an integral part of the DVIR fish & wildlife framework. The wildlife inventory will provide a baseline for comparison of population & habitat status in future years, thus enabling the evaluation of long term trends. The specific methods employed in this “*Inventory Wildlife Species & Populations of the Owyhee Basin, DVIR*” sub-proposal are described in the following section.

◆ **Objective 1. Conduct a wildlife inventory & habitat assessment of the DVIR component of the Owyhee River Basin.**

In the initial year we will hire a wildlife biologist and retain a wildlife consultant (wildlife survey design) to assist in the final design and implementation of the Owyhee Basin Wildlife Inventory Project. Likewise, we will procure any additional equipment and supplies needed to implement the wildlife inventory and habitat assessment studies.

We will meet with relevant co-management entities (Idaho, Nevada, BLM, Shoshone-Bannock and Burns Paiute, and other tribes as needed) to obtain all relevant information on upper Snake River wildlife population status. We will conduct a literature review, and compile all available data on wildlife population distribution, abundance, ecological relationships in the Owyhee River Basin. The primary product in FY2000 will be the development of a statistically valid field sampling methods, protocol and sampling design for the wildlife population assessment and quantification of their available habitats. Methodology endorsed by the NPPC on estimating the quantity and quality of habitats – i.e., Habitat Units” -- will be evaluated and utilized. This wildlife assessment work will be integrated with ongoing projects and the overall DVIR fish & wildlife management plan (refer to the umbrella proposal (ShopaiGD1.doc).

In the second and third years of the study, we will initiate the field sampling of Owyhee Basin wildlife populations & habitats -- based on the standardized study design. Each year, we will document findings in annual reports and provide input to the Owyhee Basin-DVIR strategic fish & wildlife management plan.

◆ **Objective 2. Develop a GIS mapping capability for analysis and summary of population distribution and abundance of wildlife populations & essential habitat in the Owyhee Basin – in coordination with the proposed fish stock assessment study.**

During the initial year we will consult with GIS experts and cooperating entities (tribal, state & federal fish & wildlife agencies) on the development of a PC-based GIS mapping system. We will coordinate wildlife GIS work with the proposed resident fish stock assessment project. We anticipate that experience derived from other BPA-funded studies -- such as the Kalispel Tribes’ GIS-based fish stock assessment study – will be

very valuable for facilitation of our work. We also plan to procure computer equipment software and/or services needed to conduct GIS mapping of wildlife distribution within the Owyhee River Basin during the initial year. We will investigate possibilities for cooperative arrangements and cost sharing; for example, GIS-related services may be available from a cooperative entity to enable GIS mapping of wildlife distribution within the Owyhee River Basin. During the second and third years we plan to implement GIS mapping of wildlife distribution data derived from the stock assessment work described in Objective 1.

- ◆ **Objective 3. Develop a baseline to monitor and evaluate the status of wildlife populations on the DVIR component of the Owyhee Basin with respect to (a) population distribution and abundance, (b) potential limiting ecological factors, (c) habitat and watershed conditions, (d) long-term trends, and (e) rationale for restoration project implementation and wildlife mitigation within the context of a comprehensive fish & wildlife management framework.**

During the fourth year of the study (2003), we will document our findings on the current wildlife species composition, distribution and abundance within the Owyhee River Basin – with emphasis on species and populations that are utilized by Shoshone-Paiute Tribal members. Ecologically sensitive species and species listed under the Endangered Species Act will also be given special attention. We will also relate the population status data to concurrent habitat conditions derived from the companion wetlands & riparian zone / watershed restoration study (BPA Project 9701100). We will develop computer databases for wildlife stock assessment variables and habitat conditions -- as a basis for evaluation of future long-term trends.

Ultimately, we will use the results of the wildlife inventory for adaptive management of the overall DVIR wildlife mitigation program within the structure of our strategic fish & wildlife management plan (refer to the umbrella project). The rigorous wildlife & habitat study design developed by this proposed project would lay the foundation for long-term assessment of wildlife populations in the Owyhee Basin. Statistical analysis of long-term temporal trends in data derived from concurrent wildlife population and habitat monitoring will facilitate quantitative assessment of ecological impacts and biological benefits of project actions. We can also utilize the information on wildlife species composition, distribution, abundance, and ecological relationships to provide a scientifically-based rationale for decisions on future restoration project implementation and overall wildlife mitigation planning in the Owyhee Basin -- within the context of a comprehensive regional fish & wildlife management framework.

g. Facilities and equipment

Refer to the “umbrella project” (ShopaiGD1.doc) for a description of *facilities and equipment*.

h. Budget

The personnel category is for a Project Leader Position (MS level) with training and professional experience in Wildlife Biology (1.0 FTE) to develop the final study design, supervise technicians, and implement the wildlife inventory study. In addition, six months per year of field technician time is allocated to this work.

Fringe benefits are based on a 30% rate.

The Travel category is \$7,500 for Project Leader to attend coordination meetings and for the wildlife consultant to travel to DVIR for study design and field survey work.

The Indirect Costs of \$35,245 are based on 26.6% of the subtotal categories – excluding subcontracting.

The subcontractor category (\$18,240) is for senior-level wildlife scientist (University or private sector) to provide consulting services relative to design of wildlife sampling design for the comprehensive terrestrial wildlife survey and identification of species/subspecies present in the Owyhee Basin (240 hours *\$76). The individual consultant will be selected upon award of the contract to the Shoshone-Paiute Tribes.

Section 9. Key personnel

Refer to the “umbrella project” (ShopaiGD1.doc) for a resumes of *key personnel*. In addition, the following Sho-Pai staff and consultants will be hired for implementation of this specific sub-proposal:

Project Leader – MS level wildlife biologist to be recruited and hired upon approval of BPA funding for this project.

Wildlife Scientist – Ph.D. level consultant to be identified and retained upon approval of BPA funding for this project.

Section 10. Information/technology transfer

Refer to the “umbrella project” (ShopaiGD1.doc) for a description of proposed *information and technology transfer* media and methods.

Congratulations!