

U.S. Fish and Wildlife Service

Kofa National Wildlife Refuge

**Categorical Exclusion**

Capturing and Monitoring Wildlife and Transporting Water  
and Equipment, and the Installation of Evaporative Covers and  
Measuring Devices on Water Sources in Wilderness

U.S. Fish and Wildlife Service  
Region 2  
Kofa National Wildlife Refuge  
Kofa and Castle Dome Mountains  
Yuma County  
Arizona

June 2007

Prepared by: \_\_\_\_\_ Date \_\_\_\_\_  
Susanna Henry  
Assistant Refuge Manager  
Kofa National Wildlife Refuge

Approved: \_\_\_\_\_ Date \_\_\_\_\_  
J. Paul Cornes  
Refuge Manager  
Kofa National Wildlife Refuge

## **Proposed Action**

Capturing and Monitoring Wildlife and Transporting Water and Equipment, and the Installation of Evaporative Covers and Measuring Devices on Water Sources in Wilderness

**June 2007**

**Background:** The Kofa National Wildlife Refuge (NWR) staff is working closely with the Arizona Game and Fish Department (AGFD) to address a decline in the desert bighorn sheep population. The estimated number of desert bighorn sheep on the Kofa NWR in October 2006 was 390 animals, down from an estimated 813 in 2000. The AGFD and the Service have prepared a document entitled *Investigative Report and Recommendations for the Kofa Bighorn Sheep Herd*. This document lists efforts to increase the number of desert bighorn sheep including, but not limited to, evaluating and potentially establishing seasonal public closures of bighorn lambing areas, evaluating and then removing individual mountain lions that are known to be killing bighorn sheep, capturing and radio-collaring approximately 30 sheep to evaluate their health and follow their eventual mortality, providing reliable water for desert bighorn sheep and for other species of wildlife at additional locations (beyond those water sources traditionally maintained), and redeveloping existing water sources so that they are more reliable and require less maintenance.

## **PROJECT DESCRIPTION**

**Wildlife Capturing and Monitoring:** AGFD and Kofa NWR propose placing radio collars on approximately 30 desert bighorn sheep beginning in November 2007 in order to evaluate their physical condition and to closely monitor their survival. The proposed, most effective method of capturing desert bighorn sheep (and many other large species of wildlife) is by helicopter using a net gun. This method, in common use since the 1980s, involves using a modified .308-caliber rifle to shoot a square net over an animal from the door of a helicopter using an experienced “gunner.” Besides the pilot and the gunner, a third individual, or “mugger” then exits the helicopter after landing nearby to run over and place a blindfold and hobbles on the animal. The animal is then loaded internally into the helicopter, or if the animal is too large, or a stable landing spot is not available, the animal can be placed in a net and carried as an external load. Other methods have not been found to be practicable over large expanses of desert habitat. Kofa NWR covers over 664,300 acres.

Helicopter and/or fixed wing aircraft would also be used to monitor animals that have radio collars, such as the sheep proposed for capture and radio-collaring beginning in November 2007, and mountain lions that have and are proposed to have radio collars in 2007 and 2008.

**Maintaining Water for Wildlife.** Traditionally, Kofa NWR staff have maintained water for wildlife year-around at 12 wells with windmills, Black Tank, Jasper Spring, High Tanks #2,#7,and #8, Tunnel Spring, Wilkerson Seep, Alamo Spring, Little White Tanks, Horse Tanks, Charlie Died Tank, Scotty Dog Tank (also known as Wildlife Water Catchment #736), and at times, at Figueroa Tank. Kofa NWR also maintained water at Kofa Mountain #2 Water Catchment until it was redeveloped off of Kofa NWR on BLM-managed public land in 2003. Kofa NWR and AGFD have proposed maintaining water at additional sites in order to provide a better distribution of permanent water to facilitate and recovery of the desert bighorn sheep population. The additional locations where water would be maintained include, but are not limited to, Yaqui, Burnt Wagon, Frenchman, Cereus, Maggot, Hidden Valley, Old Moonshine, Moonshine, Saguaro, Chain, White Dike, and McPherson Tanks. The Maintaining water in all of these locations would provide a better spread of available water and assist in the recovery of the sheep population by providing water at all times, but especially in the critical, hot summer months. All of the additional locations are within Wilderness. Some locations are within 1700' of a designated road (such as Cereus Tank), so water could effectively be pumped from a water truck to the water source using a 1- ½" fire hose. For those water sources too far from a designated road for water pumping, water could instead be hauled by helicopter using a "Bambi" bucket which involves carrying water as an external load. The water would be moved from a dip site located along a designated road as near to the particular wildlife water site as practical. A dip site usually consists of collapsible water tanks or "pumpkins" which are refilled by trucks carrying water in tanks. The minimum method required for a particular water source would be used to accomplish the above objectives. *The Kofa National Wildlife Refuge and Wilderness and New Water Mountains Wilderness Interagency Management Plan and Environmental Assessment* (1997) states (page 33) that the access method, maintenance, modification and/or repair of wildlife waters by mechanized/motorized means may be considered by the Field Manager and/or Refuge Manager on a case-by-case basis.

**Measuring Devices:** In addition, the Kofa NWR staff, in cooperation with AGFD, propose using a helicopter or a fixed-wing aircraft to occasionally fly over the Kofa NWR to check the condition of water sources for wildlife when hiking to each individual water source to immediately ascertain their condition is not practicable. Where possible, water sources may have a metering device installed so that observers from aircraft can better tell how deep the water is in each of the wildlife water sources. The metering devices may consist of floats, long "yellow mine" polyvinyl chloride (PVC) 2-6-inch diameter pipes (which are particularly resistant to ultraviolet radiation), or other materials adapted to fit the particular water source. These water monitoring devices could be removed or modified in the future to reduced visual impact or improve effectiveness.

**Evaporative Covers:** To reduce evaporation and possibly eliminate the need to haul supplemental water, floating evaporative-barrier covers may be installed at different water sources in Wilderness. These covers would be constructed of Hypalon or other waterproof material filled with bubble-wrap or other floatation. Hypalon is usually black or another dark color which reduces the visual contrast or unnatural appearance of the cover. The evaporative covers would custom fit to the particular water surface, while still allowing some open surface area for wildlife to drink, and would be tethered to the side of the waterhole or to a shade support. These covers have been found to improve the efficiency of a water source by as much as 40%. It is expected that during sudden rain events the shade covers may wash out, but could be retrieved later, repaired, and re-installed if desired. Evaporative covers may be installed by

hiking to the water sources carrying the covers in attached to a backpack, or by carrying the covers in using a helicopter and landing to install the covers if the hike is unusually long and/or the covers too large to be carried in on foot. The immediate need for evaporative covers dictates that for safety reasons, personnel (staff or volunteers) should not be required to hike long distances (for example, many miles roundtrip to Burnt Wagon, Maggot, or Old Moonshine Tanks) over difficult terrain, carrying large and bulky evaporative covers in high temperatures.

**Project Goal:** The overall goal of these projects is to ensure an adequate and well-distributed water supply for desert bighorn sheep (*Ovis canadensis mexicana*) during the summer months and during periods of extreme drought. These efforts would assist the Service and the AGFD in their efforts to reverse the population decline of desert bighorn sheep on the Kofa NWR and surrounding areas. These efforts would continue as needed until the desert bighorn sheep numbers have increased and stabilized and adequate rainfall is received to maintain water for wildlife in all of the water sources described under **Maintaining Water for Wildlife** (above).

**Categorical Exclusion Longevity.** This categorical exclusion would also cover future actions, such as, but not limited to, capture, radio-collaring, and release or transplant of bighorn sheep or other species of wildlife and the checking, augmentation of the water, or adding measuring devices and/or evaporative covers in other wildlife water sources not specifically mentioned. These activities are in keeping with the intent of the *Kofa National Wildlife Refuge and Wilderness and New Water Mountains Wilderness Interagency Management Plan and Environmental Assessment* (1997). The *Interagency Management Plan* is scheduled for revision in 2011; all refuge activities will be re-evaluated at that time.

## SUMMARY OF ENVIRONMENTAL IMPACTS

**Soils and Vegetation:** Temporary soil disturbance would occur during hauling water by helicopter at the water dip site and at the water sources when the helicopter creates dust from rotor wash during each refilling and emptying of the Bambi bucket. Rotor wash would also create dust during anytime a helicopter lands to deliver personnel and equipment to install water measuring devices, or to capture or transport wildlife. No soil or vegetation disturbance is expected from the installation of evaporative covers or measuring devices.

**Wildlife:** Some temporary disturbance of wildlife would occur at wildlife water sources during the time any measuring devices or evaporative covers are installed, or water is supplemented. Animals are also disturbed during capture and aerial radio-telemetry operations. These disturbances are temporary, however, and very localized during the actual water hauling, installation of measuring devices, or during the capture of wildlife. Overall negative impacts would be minor.

Maintaining water for wildlife, including monitoring water depths, is expected to have a positive impact on the desert bighorn sheep population in the area by providing reliable year-around sources of water. Without improving the distribution and reliability of available water, it is likely that desert bighorn sheep will continue to decline as the current long drought cycle continues in the southwest. Data from previous sheep surveys and observations have shown that sheep use areas where the water sources are located throughout the year.

Capturing wildlife for research purposes increases human understanding of the factors involved in wildlife health and mortality so that any currently unidentified factors can be determined, and potentially addressed. Transplanting wildlife increases the overall distribution of those species, and repopulates portions of habitat previously occupied.

**Threatened and Endangered Species:** The actions described in this document would have no effect on any threatened or endangered species. Periodically, migrating American peregrine falcons (*Falco peregrinus*) have been seen at Kofa NWR, but these observations have been restricted to the winter months. Peregrine falcons, however, were taken off the list of endangered species in August 1999. California brown pelicans (*Pelecanus occidentalis*), which remain on the endangered species list, are rarely seen flying over the refuge. Observations of these birds are usually restricted to July through September.

**Land Use and Ownership:** No changes to land use or ownership would result from the proposed action.

**Cultural Resources:** No impacts to cultural resources would result from the proposed action.

**Water (Surface and Ground):** Only minor impacts to surface water are expected to result from the proposed action. Furthermore, no impacts are expected to occur to ground water resources. Refueling of equipment will take place with care to prevent spills. Any soil contaminated by fuel or oils will be bagged and removed from the project sites for disposal in an approved landfill (the South Yuma County Landfill).

**Wilderness:** Approximately 82% of the Kofa NWR is within the Kofa Refuge Wilderness. All of the additional water sources for wildlife proposed to be maintained (such as Yaqui, Moonshine, Old Moonshine, and Frenchman Tanks) are within the Kofa Wilderness. The capture of wildlife for research or transplants would take place both inside and out of wilderness. All of the proposed sites where water measuring devices would be installed are in wilderness.

The proposed actions would temporarily impact wilderness values and character with the presence of helicopters, vehicles along designated roads, people, and materials. These impacts are expected to be restricted to a period of less than a day per location where water is augmented, where a measuring device is installed, or where wildlife is captured. If a water measuring device is installed, only the 2 to 5-inch-diameter PVC pipes (or similar materials) would be visible extending a few feet above the existing shade structure (if one is present). If evaporative covers are installed, their dark color blends in with the color of water in a natural tinaja. With careful examination of the area, a visitor would be able to find the measuring device and/or evaporative cover, but these would be substantially unnoticeable in the area as a whole.

Overall, the impact of maintenance activities in the Kofa Wilderness would be minor and temporary. (See also the *Minimum Requirements Analysis for the Capturing and Monitoring Wildlife and Transporting Water and Equipment, and the Installation of Evaporative Covers and Measuring Devices on Water Sources in Wilderness*).

**Invasive Species:** The proposed projects would result in very minor soil disturbance which is very unlikely to promote invasive species establishment.

**Cumulative Impacts:** The Service has determined that the proposed project does not result in any irreversible or irretrievable commitments of refuge resources, nor would it result in any cumulative impacts to these resources. This decision is based on the degree and nature of the impacts, the immediate benefits the proposed action would provide to wildlife resources. Additionally, because of the timing and duration of the proposed action, the impacts to wilderness character and values would be minimized.

## CONCLUSION

It is the Fish and Wildlife Service's determination that this project qualifies as actions categorically exempted from additional environmental analysis per the National Environmental Policy Act; as listed in 516 DM 6 Appendix 1 Fish and Wildlife Service, Section 1.4 Categorical Exclusions, B. Resource Management, (1) "*Research, inventory, and information collection activities directly related to the conservation of fish and wildlife resources which involve negligible animal mortality or habitat destruction, no introduction of contaminants, or no introduction of organisms not indigenous to the affected ecosystem*" (wildlife capture); and (2) "*The operation, maintenance, and management of existing facilities and routine recurring management activities and improvements, including renovations and replacements which result in no or only minor changes in the use, and have no or negligible environmental effects on-site or in the vicinity of the site.*" (water hauling and the addition of evaporative covers and measuring devices). Efforts to capture wildlife for transplants are listed in the same section under (6) "*The reintroduction or supplementation (e.g., stocking) of native, formerly native, or established species into suitable habitat within their historic or established range, where no or negligible*

*environmental disturbances are anticipated.*” [Federal Register, Vol. 62, No. 11, January 16, 1997, page 2381].

# Kofa National Wildlife Refuge Minimum Requirements Analysis

## Leading Questions:

1) Is this an emergency? (i.e. a situation that involves an inescapable urgency and temporary need for speed beyond that available by primitive means, such as fire suppression, health and safety of *people*, law enforcement efforts involving serious crime or fugitive pursuit, retrieval of the deceased or an immediate aircraft accident investigation). Circle *Yes* or *No*.

**NO**  
GO TO QUESTION 3

**YES**  
PROCEED WITH  
ACTION

2) Are there other less intrusive actions that can be taken or that should be tried first inside or outside wilderness that will resolve this issue? (i.e. signing, visitor education, information, regulations, use limits, law enforcement, are or trail closures, etc). Circle *Yes* or *No*.

**NO**  
GO TO QUESTION 3

**YES**  
IMPLEMENT OTHER  
ACTIONS USING  
THE APPROPRIATE  
PROCESS

3) Can this activity be accomplished outside of wilderness? Circle *Yes* or *No*.

**NO**  
GO TO QUESTION 4

**YES**  
PERFORM ACTIVITY  
OUTSIDE  
WILDERNESS

4) Is this activity subject to a valid existing rights? (i.e. mining claim or right-of-way easement). Circle *Yes* or *No*.

**NO**  
GO TO QUESTION 5

**YES**  
PROCEED TO  
MINIMUM TOOL

5) Is there an exception in legislation that requires this activity? Circle *Yes* or *No*.

**NO**  
GO TO QUESTION 6

**YES**  
PROCEED TO  
MINIMUM TOOL

6) Have you considered the regional landscape and how this action helps protect natural conditions within this context? (e.g. insect and disease control, wildlife transplants, displacement of visitors and impacts, etc.). Circle *Yes* or *No*.

**NO**  
CONSIDER  
REGIONAL  
LANDSCAPE  
IMPLICATIONS. GO  
TO QUESTION 7

**YES**  
PROCEED TO  
MINIMUM TOOL

7) Is there a special provision in legislation (the 1964 & 1990 Wilderness Acts) that allows this activity? (i.e. low-level overflights by military aircraft/maintenance of existing associated ground instrumentation in accordance with certain interagency agreements; law enforcement border operations by INS, DEA, Customs in accordance with certain interagency agreements). Circle *Yes* or *No*.\*

**NO**  
ACTIVITY MAY  
STILL BE  
CONSIDERED;  
COMPLETE  
RESPONSIVE  
QUESTIONS ON  
NEXT PAGE.

**YES**  
1) TAKE A **NO ACTION**  
ALTERNATIVE-  
STOP HERE  
2) TAKE AN  
**ACTION NEEDED**  
ALTERNATIVE-  
COMPLETE  
RESPONSIVE  
QUESTIONS ON  
NEXT PAGE

\*Consider an Action Needed Alternative when the effects of the activity on wilderness appear to have greater consequences than a No Action Alternative.

# Kofa National Wildlife Refuge Minimum Requirements Analysis

## **Response Questions:**

### **Consistency with Wilderness Plan:**

8) Does the action fail to meet the stated Wilderness goals and objectives of applicable legislation, policy and the Comprehensive Conservation Plan? Circle *Yes* or *No*. *Attach a written response.*

9) Is the action inconsistent with the desired future conditions of the area? Circle *Yes* or *No*. *Attach a written response.*

### **Effect on Wilderness Character:**

10) Does the proposed action maximize one resource at the expense of the wilderness as a whole? Circle *Yes* or *No*.

11) Does the proposal have effects from human activities that will dominate natural conditions and processes? Circle *Yes* or *No*.

12) Do these actions impact opportunities for solitude or a primitive and unconfined type of recreation? Circle *Yes* or *No*.

13) Will the proposal permanently occupy or modify the area? Circle *Yes* or *No*.

14) Does the action contribute to long-term *negative* effects on wilderness values? Circle *Yes* or *No*.

### **Management Situation:**

15) Did you consider convenience, comfort, economic or commercial values before wilderness values? Circle *Yes* or *No*.

NO YES EXPLAIN:

The management actions within the *Kofa National Wildlife Refuge & Wilderness and New Water Mountains Wilderness Interagency Management Plan and Environmental Assessment* include capturing wildlife and maintaining water for wildlife in Wilderness (Page 33). These actions are consistent with this plan.

NO YES EXPLAIN:

Capturing wildlife for research purposes or transplants and maintaining water sources is consistent with the desired future conditions of the area.

NO YES EXPLAIN:

The proposed action is intended to restore and maintain wildlife and wildlife habitat and the overall condition of the refuge. We do not believe this action denigrates wilderness as a whole. Wildlife is a wilderness resource.

NO YES EXPLAIN:

The effect of this action will not dominate natural conditions. Capturing wildlife and supplementing wildlife water sources leaves no lingering and/or obvious trace of human presence. Measuring devices and evaporative covers are temporary and may be removed when drought conditions improve and wildlife populations increase.

NO YES EXPLAIN:

Visitor solitude may be temporarily impacted in the immediate vicinity if mechanical means are used to accomplish these actions.

NO YES EXPLAIN:

None of the proposed actions require permanent occupancy of lands in Wilderness.

NO YES EXPLAIN:

No new negative effects will result from this action. Maintaining and enhancing wildlife populations contributes to long-term positive effects on wilderness values.

NO YES EXPLAIN:

Reality dictates that to complete this action, some short-term wilderness values will be compromised. However, economic convenience or comfort or commercial values were not the determining factor in the decision to proceed with the action. Safety to personnel and minimizing disturbance to wildlife were considered.

**Minimum Requirements Conclusion:**

Evaluate the responses for their potential adverse effect on wilderness. An increasing number of Yes responses indicates potential adverse affects to wilderness character. Do you still need to proceed?

Total: (One "Yes" Responses)

**NO-----STOP HERE**

**YES-----PROCEED TO  
MINIMUM TOOL ANALYSIS**

# Kofa National Wildlife Refuge Minimum Tool Analysis

## Project Information:

**Project Proposal:** Capturing and Monitoring Wildlife and Transporting Water and Equipment, and Installing Evaporative Covers and Measuring Devices on Water Sources in Wilderness

**Proponents of Project:** Kofa National Wildlife Refuge

**Scheduled Date:** As Needed, beginning in May, 2007

**Location:** Various, as needed

## Background and Method and Techniques to Be Employed:

**Wildlife Capture and Monitoring.** The Kofa National Wildlife Refuge (NWR) staff is working closely with the Arizona and Fish Department (AGFD) to address a decline in the desert bighorn sheep population. The estimated number of desert bighorn sheep on the Kofa NWR in October 2006 was 390 animals, down from an estimated 813 in 2000. The AGFD and the Service have prepared a document entitled *Investigative Report and Recommendations for the Kofa Bighorn Sheep Herd*. This document lists efforts to increase the number of desert bighorn sheep including, but not limited to, evaluating and potentially establishing seasonal public closures of bighorn lambing areas, evaluating and then removing individual mountain lions that are known to be killing bighorn sheep, capturing and radio-collaring approximately 30 sheep to evaluate their health and follow their eventual mortality, providing reliable water for desert bighorn sheep and for other species of wildlife at additional locations (beyond those water sources traditionally maintained), and redeveloping existing water sources so that they are more reliable and require less maintenance.

AGFD and Kofa NWR propose placing radio collars on approximately 30 desert bighorn sheep beginning in November 2007 in order to evaluate their physical condition and to closely monitor their survival. The proposed, most effective method of capturing desert bighorn sheep (and many other large species of wildlife) is by helicopter using a net gun. This method, in common use since the 1980s, involves using a modified .308-caliber rifle to shoot a square net over an animal from the door of a helicopter using an experienced "gunner." Besides the pilot and the gunner, a third individual, or "mugger" then exits the helicopter after landing nearby to run over and place a blindfold and hobbles on the animal. The animal is then loaded internally into the helicopter, or if the animal is too large, or a stable landing spot is not available, the animal can be placed in a net and carried as an external load. Other methods have not been found to be practicable over large expanses of desert habitat. Kofa NWR covers over 664,300 acres.

Helicopter and/or fixed wing aircraft would also be used to monitor animals that have radio collars, such as the sheep proposed for capture and radio-collaring beginning in November 2007, and mountain lions that have and are proposed to have radio collars in 2007 and 2008.

**Maintaining Water for Wildlife.** Traditionally, Kofa NWR staff have maintained water for wildlife year-around at 12 wells with windmills, Black Tank, Jasper Spring, High Tanks #2,#7, and #8, Tunnel Spring, Wilkerson Seep, Alamo Spring, Little White Tanks, Horse Tanks, Charlie Died Tank, Scotty Dog Tank, and at times, at Figueroa Tank. Kofa NWR also maintained water at Kofa Mountain #2 Water Catchment until it was redeveloped off of Kofa

NWR on BLM-managed public land in 2003. Kofa NWR and AGFD have proposed maintaining water at additional sites in order to provide a better distribution of permanent water to facilitate and recovery of the desert bighorn sheep population. The additional locations where water would be maintained include, but are not limited to, Yaqui, Burnt Wagon, Frenchman, Cereus, Maggot, Hidden Valley, Old Moonshine, Moonshine, Saguaro, Chain, White Dike, and McPherson Tanks. The Maintaining water in all of these locations would provide a better spread of available water and assist in the recovery of the sheep population by providing water at all times, but especially in the critical, hot summer months. All of the additional locations are within Wilderness. Some locations are within 1700' of a designated road (such as Cereus Tank), so water could effectively be pumped from a water truck to the water source using a 1- 1/2" fire hose. For those water sources too far from a designated road for water pumping, water could instead be hauled by helicopter using a "Bambi" bucket which involves carrying water as an external load. The water would be moved from a dip site located along a designated road as near to the particular wildlife water site as practical. A dip site usually consists of collapsible water tanks or "pumpkins" which are refilled by trucks carrying water in tanks. The minimum method required for a particular water source would be used to accomplish the above objectives. *The Kofa National Wildlife Refuge and Wilderness and New Water Mountains Wilderness Interagency Management Plan and Environmental Assessment (1997)* states (page 33) that the access method, maintenance, modification and/or repair of wildlife waters by mechanized/motorized means may be considered by the Field Manager and/or Refuge Manager on a case-by-case basis.

In addition, the Kofa NWR staff, in cooperation with AGFD, propose using a helicopter or a fixed-wing aircraft to occasionally fly over the Kofa NWR to check the condition of water sources for wildlife when hiking to each individual water source to immediately ascertain their condition is not practicable. Where possible, water sources may have a metering device installed so that observers from aircraft can better tell how deep the water is in each of the wildlife water sources. The metering devices may consist of floats, long "yellow mine" polyvinyl chloride (PVC) 3-4-inch diameter poles (which are particularly resistant to ultraviolet radiation), or other materials adapted to fit the particular water source. These water monitoring devices could be removed or modified in the future to reduced visual impact or improve effectiveness.

To reduce evaporation and possibly eliminate the need to haul supplemental water, floating evaporative-barrier covers may be installed at different water sources in Wilderness. These covers would be constructed of Hypalon or other waterproof material filled with bubble-wrap or other floatation. Hypalon is usually black or another dark color which reduces the visual contrast or unnatural appearance of the cover. The evaporative covers would custom fit to the particular water surface, while still allowing some open surface area for wildlife to drink, and would be tethered to the side of the waterhole or to a shade support. These covers have been found to improve the efficiency of a water source by as much as 40%. It is expected that during sudden rain events the shade covers may wash out, but could be retrieved later, repaired, and re-installed if desired. Evaporative covers may be installed by hiking to the water sources carrying the covers in attached to a backpack, or by carrying the covers in using a helicopter and landing to install the covers if the hike is unusually long and/or the covers too large to be carried in on foot. The immediate need for evaporative covers dictates that for safety reasons, personnel (staff or volunteers) should not be required to hike long distances (for example, many miles roundtrip to

Burnt Wagon, Maggot, or Old Moonshine Tanks) over difficult terrain, carrying large and bulky evaporative covers in high temperatures.

**Planning Background.** *The Kofa National Wildlife Refuge and Wilderness and New Water Mountains Wilderness Interagency Management Plan and Environmental Assessment (1997)* specifically covers the use of helicopters for the capture of desert bighorn sheep for transplants to other areas (page 33), but is silent about the use of helicopters to capture and release wildlife, including desert bighorn sheep. The *Interagency Management Plan* also covers the use of mechanized equipment to augment and maintain important sources of water for wildlife (page 33), but does not mention any other water sources in Kofa NWR Wilderness other than Adam's Well, Kofa Mountain #1 (also known as Scotty Dog Catchment or Catchment #736), Kofa Mountain #2 (formerly Catchment #737, now #1115), King Well, and Charlie Died Tank. The *Interagency Management Plan* does state that "...the access method for emergency situations at wildlife waters will be determined by the Field Manager and/or Refuge Manager on a case-by-case basis, and where applicable, in consultation with AGFD.."

**MRA Longevity.** This Minimum Requirements Analysis and NEPA Worksheet would also cover future actions, such as, but not limited to, capture, radio-collaring, and release or transplant of bighorn sheep or other species of wildlife and the checking and augmentation of the water, and/or the installation of evaporative covers and measuring devices in other wildlife water sources not specifically mentioned. These activities are in keeping with the intent of the *Kofa National Wildlife Refuge and Wilderness and New Water Mountains Wilderness Interagency Management Plan and Environmental Assessment (1997)*. The *Interagency Management Plan* is scheduled for revision in 2011; all refuge activities will be re-evaluated at that time.

#### **Why Project Is Necessary:**

Kofa NWR was established, in part, for the conservation of desert bighorn sheep and other wildlife, and the maintenance of this population of desert bighorn sheep is very important regionally for the conservation of sheep and as a source for transplants to other locations in order to establish and re-establish other sheep herds. Wildlife is an important component of Wilderness.

#### **Alternatives:**

##### **1) Alternative 1: (No Action):**

Maintain water in only those water sources that have been traditionally maintained; allow other water sources to dry out or re-fill with rainwater naturally. Place no evaporative covers on any wildlife water source and allow the water to evaporate at the usual rate. Rather than collar any desert bighorn sheep to evaluate their health and help determine their causes of mortality, focus only on the ongoing radio (and Global Positioning System) collaring of mountain lions. Perform all checks of radio-collared animal locations and water sources on foot. Install no measuring devices so that remote water sources can be checked by air.

##### **2) Alternative 2: (Proposed Action):**

In order to do what is humanly possible to improve the numbers of desert bighorn sheep within the Kofa NWR, the U.S. Fish and Wildlife Service would maintain the wildlife water sources traditionally maintained (12 windmill/wells, 2 buried wildlife water catchments, 5 springs, and 6 tinajas or rock water holes) and, additionally, 12 tinajas or rock water holes not previously traditionally maintained. The maintenance of these additional sources of water would involve installing temporary evaporative covers and augmenting the water sources so that they do not go dry. Water supplementation could be done by pumping water through a fire hose from a water truck that is parked on a designated road outside of Wilderness when the source of water is relatively close (such as Cereus Tank

which is only 1,700' from the designated road). When the distances do not allow pumping, water would be carried from a portable water tank, such as a fold-a-tank or "pumpkin" placed along a designated road to the water source using a helicopter with an externally-loaded "Bambi" bucket.

Working with the AGFD and other partners, place evaporative covers on wildlife water sources to reduce evaporation and limit the number of trips and mechanized intrusions needed to augment water at these locations. Install these covers by backpacking into the areas on foot or by delivering the covers by helicopter if this is more practicable given the weight and size of the covers, the daytime temperatures, safety considerations, and the distance from the nearest designated road. Add metering devices where possible and practicable in order to better be able to judge water levels from the air. Check remote water sources from the air when aircraft are available, using both fixed-wing aircraft and helicopters.

Continue with the efforts to study the current health and eventual mortality of sheep by radio-collaring approximately 30 desert bighorn sheep beginning in November 2007. Using radio collars is the only method known to accurately determine mortality and survival rates of desert bighorn sheep. Helicopters would be used to capture the sheep and the sheep would be captured with net-guns, which has been the prevailing method of capture since the 1980s. The sheep would be released after radio-collaring. The monitoring of the locations of these sheep, along with the mountain lion radio-collared in February 2007 and any subsequent radio-collared mountain lions may also be accomplished by aircraft when practicable.

### **For Each Alternative:**

#### **List Biophysical Effects (Environmental resource issues affected, biological and physical effects, consideration for the wilderness resource as a whole):**

##### **1) Alternative 1: No Action:**

Failure to maintain additional sources of water for wildlife, radio-collar desert bighorn sheep and additional mountain lions, more closely monitor water sources, or to install temporary evaporative covers would likely result in no improvement to the availability and distribution of water for desert bighorn sheep, and a failure to more fully explore the causes of the Kofa NWR desert bighorn sheep decline. This lack of action would likely mean that the population of desert bighorn sheep would continue to decline, especially if the ongoing drought conditions continue.

##### **2) Alternative 2: (Proposed Action):**

An improvement in the reliability and distribution of water sources for wildlife, and especially desert bighorn sheep would assist the animals in population recovery by providing water during the hot summer months. The availability of water assists lactating ewes in milk production and this, in turn, improves lamb survival, which is critical to population recovery. The placement of radio collars on desert bighorn sheep and additional mountain lions would improve the information concerning the interaction of mountain lions and desert bighorn sheep, as well as increasing information concerning desert bighorn sheep health. Biological samples taken during the collaring effort, including blood, tissue, and pharyngeal swabs, can be evaluated by a wildlife veterinary diagnostic laboratory to determine the animals' health.

#### **List Social/Recreation/Experiential Effects (How the wilderness experience may be affected, effects to wilderness character, cumulative effects to wilderness character, scientific and historic use, effect action may have on the public and their wilderness experience):**

##### **1) Alternative 1 – No Action.**

If the decline in desert bighorn sheep numbers is not addressed and the decline continues, the loss of wildlife would have a direct and negative effect on the social and recreational experience of the visitor. The presence of desert bighorn sheep and other wildlife on the refuge enhances the visitors' experience and adds to the Wilderness

character. Doing nothing also does not take advantage of the opportunity to study the decline of desert bighorn sheep and their interactions with their environment.

The U.S. Fish and Wildlife Service would fail to maintain and enhance the wildlife populations under its care and may be seen as failing to meet its responsibilities for wildlife and habitat management. Taking no action would also mean that the U.S. Fish and Wildlife Service is not meeting its requirements under law and policy.

A visitor the Kofa Wilderness would not encounter the mechanized equipment, measuring devices, or the temporary floating covers planned to be used in Alternative 2.

## **2) Alternative 2: (Proposed Action):**

The visual and noise impacts associated with augmenting water sources by air, transporting personnel and evaporative covers and measuring devices by air, capturing and collaring desert bighorn sheep and monitoring collared desert bighorn sheep and mountain lions and water levels by air would have short-term, negative impacts on wilderness character. However, these impacts would be temporary, lasting only for a few hours on the day selected for each part of the overall effort. In addition, much of the work is scheduled during the hot summer months, when the Kofa NWR has the fewest visitors.

### **List Societal/Political Effects (Political considerations, i.e. MOUs etc):**

#### **1) Alternative 1: No Action:**

If the public learns that the U.S. Fish and Wildlife Service has decided to forgo opportunities to monitor and enhance the reliability and distribution of permanent water sources, to learn more about the potential causes of the desert bighorn sheep decline that could be learned from a sheep and lion radio-collaring effort, or to monitor water sources considered critical for desert bighorn sheep recovery, they are likely to perceive the refuge as failing to meet its responsibilities for wildlife and habitat management and failing to meet its requirements under law and policy.

#### **2) Alternative 2: (Proposed Action):**

There would be no anticipated societal effects if this alternative were selected. There may be some opposition to this alternative by Wilderness advocates who may object to the use of mechanical devices for any reason, even to maintain wildlife populations that enhance wilderness characteristics. However, no opposition was raised in 2003 or 2004 when mechanized means were used to replenish water in natural water sources in Wilderness that were about to go dry, or when existing wildlife water catchments were redeveloped, such as Charlie Died Tank in 1998 and Scotty Dog Wildlife Water Catchment (Catchment #736) in 2001. Also, no public opposition has been raised when desert bighorn sheep have been captured in the past for transplants or for the radio collaring of desert bighorn sheep that took place prior to the completion of the *Kofa National Wildlife Refuge and Wilderness and New Water Mountains Wilderness Interagency Management Plan and Environmental Assessment*. In addition, there was no public opposition when this plan was prepared concerning wildlife management.

The Service is in the process of contacting stakeholders, such as the Sierra Club, Yuma Audubon Society, and the Arizona Wilderness Coalition as part of a larger outreach strategy for the *Investigative Report and Recommendations for the Kofa Bighorn Sheep Herd*.

### **List Health and Safety Concerns (Consider types of tools used, training, certifications, and other needs to ensure a safe work environment; consider public effects):**

#### **1) Alternative 1: No Action:**



A helicopter capture and radio-collaring effort for desert bighorn sheep would be scheduled initially for November 2007. Additional radio-collaring efforts for mountain lions would commence in June 2007. Aerial monitoring (by fixed-wing or helicopter) to locate radio-collared animals (bighorn sheep and mountain lions) would begin in June 2007.

Installation of evaporative barriers and water level monitoring devices would begin in June 2007. Evaporative barriers would be installed first where they would provide the most benefit (where water augmentation is the most costly and difficult). Where practicable, evaporative covers would be carried by backpack to the particular water sources and placed on the water surface. The evaporative covers would be tethered in place using a rope tied to a grommet or grommets on the edge of the cover and anchored to a nearby rock or to an upright on an existing shade structure, where possible. If the distances and sizes of the evaporative covers become too difficult for a backpack, a helicopter may be used to transport the covers and the personnel to install the covers to the water sources in question.

These activities would continue as long as is needed, and would be reevaluated once the bighorn sheep population has increased to previous levels and stabilized and adequate rainfall is received to maintain all the listed sources of water.

**Other Considerations to Minimize Impacts to Wilderness (Specific operating requirements, maintenance requirements, standards and designs, mitigation measures needed, monitoring and feedback needed to assist in planning future actions):**

All equipment and materials used in the installation of evaporative covers would be removed at the conclusion of each installation project. Workers would be encouraged to employ Leave No Trace techniques throughout the described efforts. Vehicles not needed for a particular project will remain within 100 feet of designated roads. Helicopter activities will take place during the workweek (Monday through Friday) when possible to reduce the chance of disturbing anyone who may be visiting the Kofa Wilderness, and at a time in the year when the visitation is the lowest, when possible.

Kofa National Wildlife Refuge

Minimum Requirement Analysis and NEPA Worksheet

**Capturing and Monitoring Wildlife and Transporting  
Water and Equipment, and Installing Evaporative  
Covers and Measuring Devices on Water Sources in  
Wilderness**

U.S. Fish and Wildlife Service  
Region 2  
Kofa National Wildlife Refuge  
Yuma and La Paz Counties

Prepared by: \_\_\_\_\_

\_\_\_\_\_  
Susanna Henry  
Assistant Refuge Manager  
Kofa National Wildlife Refuge

Date

Approved: \_\_\_\_\_

\_\_\_\_\_  
J. Paul Cornes  
Refuge Manager  
Kofa National Wildlife Refuge

Date



**NEPA Worksheet:**

- |   |   |  |
|---|---|--|
| 1) Is the action of limited scope and duration and qualifies as a categorical exclusion? Circle <i>Yes</i> or <i>No</i> : | <b>NO</b><br>Go to Question 2   | <b>YES</b><br>Proceed with action:<br>Document Wilderness<br>Trips and Maintain<br>Project Files |
| 2) Is the action likely to have significant adverse effects on the human environment? Circle <i>Yes</i> or <i>No</i> :    | <b>NO</b><br>Scope Interested<br>Public; Prepare an<br>EA; Prepare Decision<br>Memo | <b>YES</b><br>Proceed with EIS   |

**Project Leader:**


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**Signature**
**Date**

# Kofa National Wildlife Refuge

## Minimum Requirement Analysis and NEPA Worksheet

(Insert Project Title)

U.S. Fish and Wildlife Service  
Region 2  
Kofa National Wildlife Refuge  
New Water Mountains  
La Paz County

Prepared by: \_\_\_\_\_

\_\_\_\_\_  
Susanna Henry  
Assistant Refuge Manager  
Kofa National Wildlife Refuge

Date

Approved: \_\_\_\_\_

\_\_\_\_\_  
J. Paul Cornes  
Refuge Manager  
Kofa National Wildlife Refuge

Date