

**UTAH BEAVER MANAGEMENT PLAN  
2010 – 2020**



**Developed in consultation  
with  
BEAVER ADVISORY COMMITTEE**

DWR Publication 09-29

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# UTAH BEAVER MANAGEMENT PLAN

## 2010 - 2020

### Plan Goal

Maintain healthy, functional beaver populations in ecological balance with available habitat, human needs, and associated species.

### INTRODUCTION

The purpose of the Utah Beaver Management Plan is to provide direction for management of American beaver (*Castor canadensis*) in Utah and where appropriate expand the current distribution to historic range. This purpose is in accordance with the mission statement of the Utah Division of Wildlife Resources (UDWR). The mission of UDWR is:

*To serve the people of Utah as trustee and guardian of the state's wildlife*

The Beaver Management Plan will direct beaver management statewide for a period of ten years (2010-2020). During 2020, this document will be reviewed, management progress will be evaluated and an updated management plan will be written and presented to the Utah Wildlife Board for approval.

### BACKGROUND

#### Natural History

Beaver are the largest member of the rodent order in North America, and belong to the family Castoridae. They are very adapted to aquatic environments, with webbed feet, a stout body and broad paddle like tail to aid in swimming and balancing when standing upright. On land beaver move with an awkward waddle but are capable of bolting short distances. Adult beaver weigh 16-31.5 kg (35-70 lbs) and are up to 120 cm (47 in) in length. (Barker et. al. 2003). Pelt coloration varies from reddish, chestnut, nearly black to a yellowish brown depending on the population.

Beaver reach sexual maturity between 1.5-3 years of age (Barker et. al. 2003). They are considered monogamous with a single pair and young forming a family group. Extended family members form a loose knit group referred to in the literature as a colony. A typical colony consists of an adult pair, young of the year or kits and yearlings from the previous year. Beaver breed in the fall and early winter and give birth to one litter

(typically 2-4 young) in the spring. The gestation period is approximately 100 days. Young stay with the adults through the first winter and as yearlings during the second winter. Dispersal usually occurs at 24 months of age but is variable depending on the amount of unoccupied habitat. Beavers are believed to exhibit density dependent population characteristics (Barker et. al. 2003). Home range can vary 8-18 ha (20-45 ac) with nonfamily groups tending to occupy larger territories than family groups (Wheatley 1997a, 1997b).

Beaver construct dams, ponds and canals to gain reliable access to food resources. This activity tends to alter the adjoining landscape. In addition, beaver construct lodges and bank dens for shelter and protection from predators. Within these newly created aquatic systems, beaver will establish winter food caches. This behavior usually occurs only in regions with persistent ice cover during a portion of the year. Beaver consume both herbaceous and woody plants with studies documenting 0.5-2.0 kg (1-4.5 lbs) of wet woody forage per day (Dyck et. al. 1993). Their preferred diet, when present, consists of herbaceous vegetation (forbs, grasses, roots and tubers), aspen, cottonwood and willow (Jenkins 1981). Other woody plants found in their diet but less desirable, like conifers, sage brush and tamarisk are used for dam construction and the capping of winter food caches.

### **Distribution and Abundance**

Beaver are native to North America and found throughout most of Utah. Durrant (1952) described beaver inhabiting all regions of Utah, except the desert environments of the Great Basin. Early Utah explorers and fur trappers considered beaver abundant prior to 1825 (Rawley 1985). Aggressive trapping continued into the late 1800's until beaver were considered rare. Beaver harvest was closed by the state legislature in 1899.

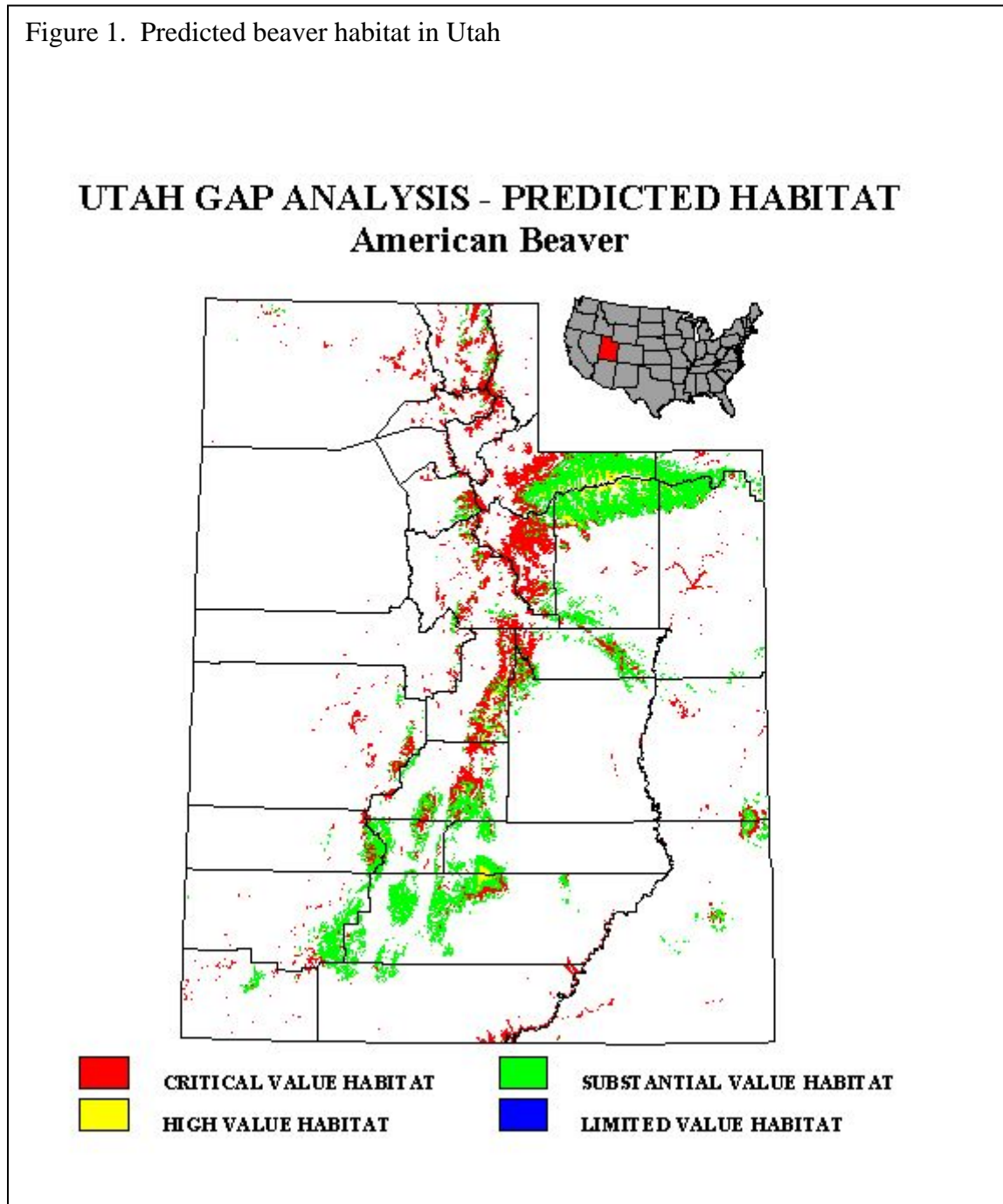
By 1912 beaver populations were increasing and nuisance activities were reported. Beginning in 1915, Utah citizens could live trap up to 10 beaver per year for propagation provided 25% of the progeny were released back into the wild. In 1937, thirty caretakers (trappers) live trapped and transplanted 84 beaver onto National Forest Lands. Statewide harvest resumed in 1957, with occasional site specific closures, likely due to an increase in beaver distribution and abundance.

The UDWR conducted a beaver distribution, habitat and population survey from 1971-1982. This survey estimated 4,021 miles (6,471 km) of suitable stream habitat with a carrying capacity of 25,492 beaver statewide (Blackwell and Pederson 1993). The population in 1981 was estimated at 29,445 beavers suggesting approximately 3,953 beavers in excess of estimated carrying capacity (Blackwell and Pederson 1993). The predicted beaver habitat in Utah was mapped as part of the 1995 Utah GAP Analysis (Figure 1). Current beaver distribution and abundance is not fully understood, however they are considered common and most of the suitable habitat believed to be occupied.

## Legal Status

Beaver in Utah are classified as protected wildlife. The UDWR is responsible for their management. There is an open trapping season which generally runs from October through early April with unlimited take. Beaver causing damage may be taken or removed by the public during closed seasons provided a permit is obtained from UDWR. The UDWR also licenses nuisance wildlife control companies to remove beaver causing damage.

Figure 1. Predicted beaver habitat in Utah



## Management Actions

The state legislature made it illegal to “kill” beaver in 1899. In 1915 the UDWR (formally referred to at the time as the Utah Fish and Game Department) was given authority to live trap and transplant nuisance beaver. Many of these animals were moved around the state and this effort continued at least through 1954. Live trapping efforts as far as number of individuals, source and translocation sites were not well documented.

Harvest by commissioned trappers began in 1922. From 1922 to 1953 duly commissioned trappers were allowed to harvest beaver with 50% of the pelt proceeds retained by the state. Pelt prices began to drop in 1953, resulting in an upward adjustment of the percentage paid to commissioned trappers. By 1957 the UDWR was given authority to establish an open beaver trapping season eliminating the need for most commissioned trappers other than UDWR employees. During open seasons there was no bag limit but trappers were required to submit their pelts to conservation officers for tagging. Officers tagged each pelt for a fee of \$1.00. This fee was reduced to \$.50 in 1968. The tagging requirement was discontinued in 1974. A statewide beaver trapping season from October to early April with unlimited take has been in place from 1957 to present. Site specific closures have been periodically used to reduce harvest.

Early beaver management consisted of assessing populations in select streams within defined beaver management units. An annual report has been published with beaver management recommendations and limited harvest statistics since 1953. The management recommendation section of the annual report was dropped in 1981. Sport harvest reporting began in 1958 with harvest statistics collected annually since that time (Figure 2). It was not until 1972 when a metric used to measure trapping effort was collected as part of the annual harvest survey. This metric is expressed as the number of trap set-days/beaver. Since 1983 trap set-days per beaver have ranged from 8 to 55 (Figure 3).

Figure 2. Licensed trappers afield and beaver harvest since 1958.

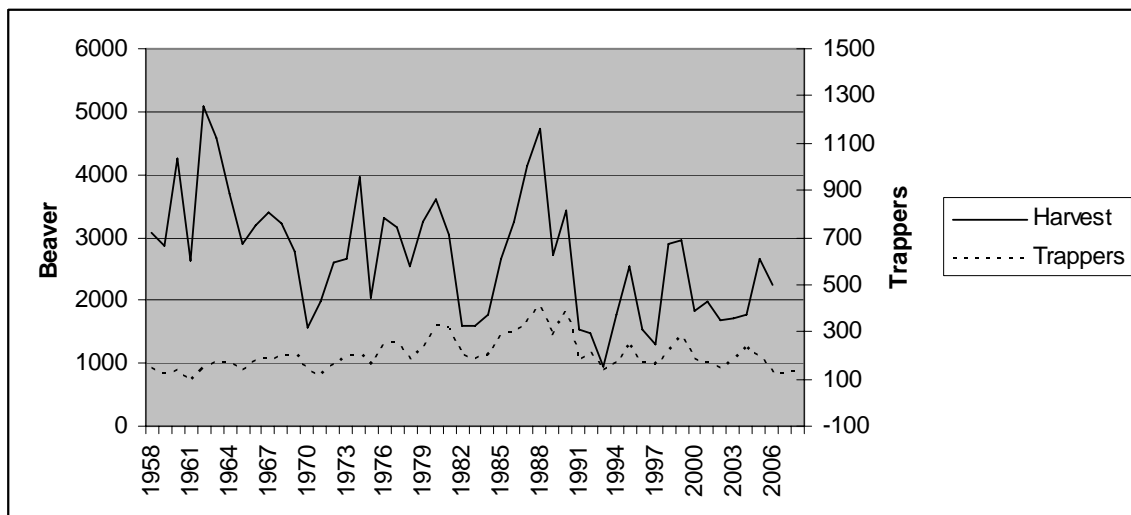
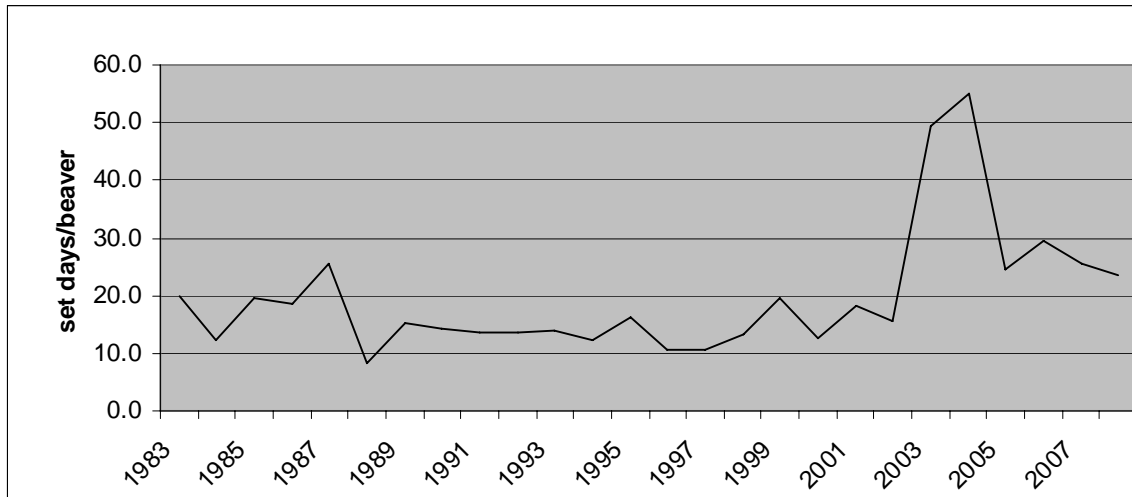
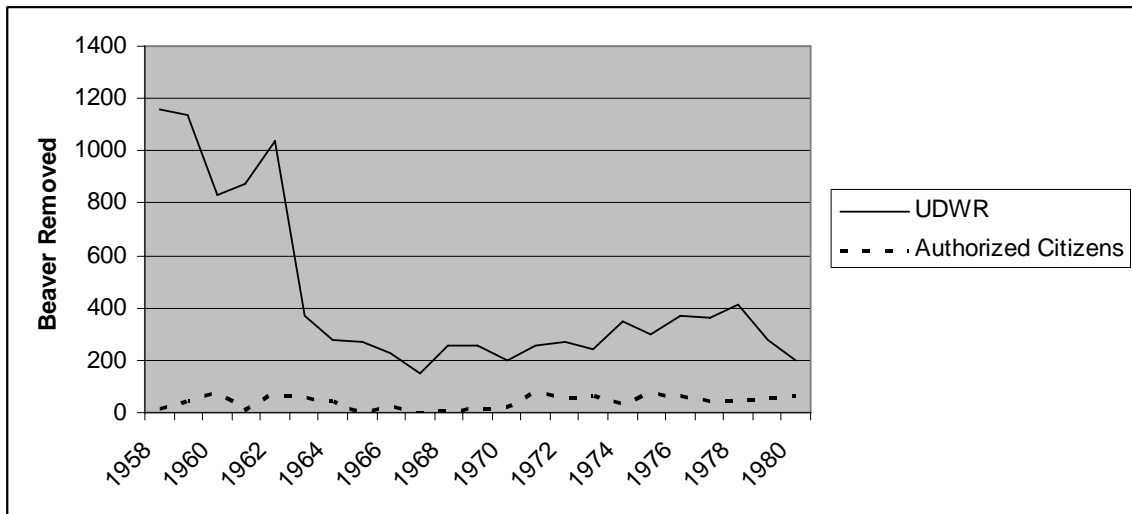


Figure 3. Trap set-days per beaver from 1983-2008



Nuisance beaver control activities were tracked from 1958 through 1980 and include UDWR and authorized citizen removals. It is unclear if this data were collected prior to 1958 or after 1980. The number of non-sport harvest removals from 1958-1980 can be found in Figure 4.

Figure 4. Non-sport harvest beaver removal from 1958-1980.



## ASSESSMENT

### Issues and Concerns

At the first meeting of the Beaver Advisory Committee the following list of issues and concerns were identified. Subsequent meetings focused on developing objectives, strategies and management systems to address the issues and concerns identified by the group.

### Outreach / Education

- Education on
  - non-lethal control methods
  - the habitat values of beavers
  - accommodating beaver
  - working with private neighbors when a private/public reintroduction is desired
- Plan should balance needs of people, habitat and wildlife species
- Educate the public what UDWR's role or responsibility is in dealing with problem beaver (when we aggressively solve the problem, or when we leave it in the public's hands with the proper permit)

### Population Management

- Maintain a basic picture of distribution/density of beaver in Utah
- Need to understand we will be working in human altered habitat which requires management
- Consider beaver colony distribution and abundance

### Harvest Management

- Concerned about trapping closures
- Closures should have time frames for evaluation (# years closed until evaluation)
- Trapping limits after beaver have established in a stream
- Consider unique harvest regulations
- Don't eliminate fur harvest program
- Support public use of beaver as a furbearer
- Little need to protect translocated beaver in areas with poor vehicle access and/or during times with low demand for pelts, as is currently the case

## Damage Management / Beaver Conflict Management

- Deal with problems in some areas
  - keeping water moving in small systems
  - wetland management concern
  - lethal vs nonlethal removal decision model
- Problem beaver management using trappers
- Process to streamline problem beaver management using trappers (COR's for trappers statewide)
- Retain ability to help cooperators in a timely fashion (beaver damage)
- Educate the public about non-lethal techniques
- Refer trappers to resolve problems
- Build statewide list of trappers willing to help solve the problem
- Beaver free areas
- Consider management system (decision matrix) from non-lethal to lethal control
- Use of explosives to breach dams with other agencies assisting. Improve communication within UDWR when beaver dams are removed
- Materials list/specifications for flow control devices (pond leveler, culvert protection)
- Video on construction of flow control devices
- Problems in managed wetlands, resolve with non-lethal methods
- Provide drawings of non-lethal management techniques
- Tree protection methods for new restoration sites
- Cooperate with private landowners and water right holders with both removal and introductions
- Procedures for handling nuisance beaver written into a policy similar to other species like cougar and bear
- Refine the nuisance beaver permit process
- Keep an updated list of local trappers in each region (perhaps on the \S drive)
- Educate the public what our role or responsibility is in dealing with problem beaver (when we aggressively solve the problem, or when we leave it in the public's hands with the proper permit)
- Review the UDWR's role for use of explosives in breaching dams (stream alteration permit process, etc.)
- Maintain a database of beaver problems with GPS locations (create a beaver nuisance form for each region to fill out on every call for better records of problem areas and history)
- Dealing with problem beavers in the following areas
  - Residential urban (tree cutting, flooding)
  - City nuisance beavers (culvert damming, flooding, etc.)
  - Landowners (damming irrigation canals)
  - UDOT (major roadway flooding)
  - Other (Railroads, businesses by rivers – tree cutting-aesthetics)
- Retain ability to cooperatively manage/address nuisance issues around campgrounds, roads, dams/spillways, diversions, trails

- Potential funding and information for non-lethal beaver management structures where appropriate.

### Disease/Aquatic Nuisance Species Management

- Disease transmission
- Consider invasive species introductions through transplants (mussels)

### Research

- Ability to assist with scientific collection requests

### Watershed Restoration

- Some areas suitable for establishment of beaver
  - need to create/establish standards and guidelines for potential release sites
  - need to individually analyze potential release sites due to existing riparian health mitigation
  - internal scoping (NEPA) process necessary before relocation could occur (BLM land)
- Transplants of native wildlife (beaver) are generally considered “State Actions” and as such, typically require no National Environmental Policy Act documentation unless federal funds are involved.
- Pro beaver transplant
- Support restoration of beaver and adequate protection where establishing
- List of
  - sites approved/available for reintroduction
  - source sites
- Encourage live-trapping of entire families
- List of people who know how to live trap
- Explore certification of non agency people to live trap and move beaver to approved sites
- Develop list of beaver re-introduction sites (private lands) and source populations
- Water right issues
- Go to areas with the least number of conflicts
- Cooperate with private landowners and water right holders with both removal and introductions
- Consider using beaver as a stream restoration tool
- Beaver are a good tool that could be used to restore degraded riparian communities that could benefit many other wildlife species

- Need to consider the site characteristics of the locations where beaver will be relocated/re-introduced
  - Enough vegetation to support a beaver population
  - Will they create more depredation problems in the new location? i.e. roads, private land, water rights, etc.
  - How will they affect the fish habitat/population and migration?
- Potential funding and information for non-lethal beaver management structures where appropriate
- Transplant “stock” should not be held to nuisance beaver only, as has been the case in the past...more efficiency in capture and movement as well as success in survival could be attained by using beaver from colonies in neighboring watersheds
- Little need to protect translocated beaver in areas with poor vehicle access and/or during times with low demand for pelts, as is currently the case
- Potential benefits of aspen/cottonwood restoration in improving beaver habitat

## **Objectives, Strategies and Management System**

The Beaver Advisory Committee developed the plan goal, objectives, strategies and management system to address identified issues and concerns. Following are the objectives, strategies and management system developed by the advisory committee. The plan goal is found at the beginning of the document on page 4.

### Outreach and Education

#### Objective 1:

Increase awareness of and appreciation for the role of beaver in Utah’s ecosystems in 10% of stakeholders (landowners, educators, recreationalists, sportsmen, water rights holders) by 2020.

#### Strategies:

1. Conduct a baseline survey of stakeholders to establish their current understanding of the role of beaver in Utah’s landscape.
2. Develop an educational brochure (Wildlife Notebook Series) highlighting life history, habitat requirements and the role of beaver in the ecosystem for distribution to stakeholders and the general public.
3. Develop “Living with Beaver” informational materials outlining the difference between nuisance and beneficial beavers and options for landowners, agencies and the general public for coexisting with beavers. These materials will highlight techniques, benefits and costs associated with non-lethal methods for beaver management all the way through lethal removal as a final option.

4. Establish at least one showcase beaver management area in each UDWR Region.
5. Evaluate program effectiveness at least once by 2020.

Objective 2:

Improve the understanding of all UDWR and other governmental agency employees involved in beaver management and assure consistent transmission of information and application of management actions through 2020.

Strategies:

1. Conduct a baseline survey of agency employees to establish their current understanding of beaver management options and the role of beaver in Utah's landscape.
2. Assess how the agencies currently handle beaver management challenges.
3. Establish guidelines to bring consistency and inform UDWR employees and assisting agencies (similar to cougar and bear guidelines) by outlining procedures for management of beaver in urban, rural and upper watershed settings.
4. Evaluate program effectiveness at least once by 2020.

Population Management

Objective 1:

Maintain reproducing beaver populations within their current distribution in appropriate habitat through 2020. (See Watershed Restoration Objective for population expansion)

Strategies:

1. Develop a statewide baseline beaver distribution map to document current status within two years after plan approval by working with UDWR regions, universities, governmental and non-governmental organizations.
2. Identify zones on the map to illustrate appropriate beaver management strategies for given geographic areas, i.e. existing populations (including source populations), unoccupied historical range and areas where the potential for conflict is high.
3. Actively pursue funding and partnerships to conduct ground and possibly aerial beaver population and habitat suitability surveys to obtain 1) detailed distribution information: and, when possible, density estimates.

4. Obtain methodologies and results from other agencies currently conducting beaver surveys. Consider the methodology developed by UDWR in the statewide 1971-1981 study to allow for comparison of current and historical population data.
5. Update the baseline map in the final two years (2018-2020) of the plan.

## Harvest Management

### Objective 1:

Maintain recreational opportunity for a minimum of 350 trappers and a sustainable harvest of 3,500 beavers annually through 2020. (See Watershed Restoration Objective for population expansion)

#### Management System:

Maintain baseline regulated statewide harvest management program of traditional seasons and unlimited take unless:

1) Average set-days/beaver over a three year period is greater than 34; then season length will first be shortened (open a week later and close a week earlier) and if additional protection is necessary, area closures will be expanded to bring set-days/beaver into historical range (11 to 34 set-days/beaver) over the following three year guidebook cycle.

(-OR-)

2) Average number of beavers trapped over a three year period exceeds 3,500 and average set-days/beaver goes above 18; then season length will first be shortened (open a week later and close a week earlier) and, if additional protection is necessary, area closures will be expanded to reduce harvest and maintain catch per unit effort below 18 set-days/beaver over the following three year guidebook cycle.

#### Strategies:

1. Continue post season furbearer surveys to estimate beaver harvest, number of trappers and catch per unit effort at the county level.
2. Evaluate the need for stream closures listed in the guidebook once every three years. Remove or add streams based on achieving desired results, harvest vulnerability and high level of conflict.
3. Determine the level of protection required for translocated or diminished beaver populations by considering harvest vulnerability. One of the following approaches will be selected.

- a. (High Harvest Vulnerability i.e. less than 0.5 mile from open roads/access points) – close specific watersheds for a given length of time. Generally the length of time should not exceed six years or two three-year guidebook cycles. Upon transition from the high harvest vulnerability, the population will be provided protection identified under the moderate harvest vulnerability approach.
  - b. (Moderate Harvest Vulnerability i.e. 0.5 to 1.0 mile from open roads/access points) – encourage light harvest by signing appropriate areas to obtain voluntary compliance. This management approach will be useful for streams that fall between the high and low harvest vulnerability.
  - c. (Low Harvest Vulnerability i.e. over 1.0 mile from open roads/access points) – access constraints or demand for pelts limit trapping interest. This management approach is self regulating (requires no action) and relies on the “law of diminishing returns”.
4. Upon completion of a statewide population survey (contingent upon available funding) identified in Population Objective section of the plan (O1 S3), the current beaver harvest management system will be adjusted accordingly.

## Damage Management

### Objective 1:

Increase consistency in the response options (lethal and non-lethal) currently in use and increase the frequency of use of non-traditional options (e.g. beaver deceivers, live-trapping) used by UDWR, governmental and non-governmental agencies and landowners for managing beaver causing property damage through 2020.

### Strategies:

1. Assemble a list of available control/abatement options currently in use in Utah by UDWR, governmental and non-governmental agencies and landowners.
2. Identify and implement control/abatement options not currently in use in Utah.
3. Continue to issue Certificates of Registration (COR) to nuisance wildlife companies. Look for opportunities to relax control options available to companies (e.g. live trapping, snares and other methods).
4. Generate a list of individuals that have an interest in trapping beaver (including live-trapping) and use them as a resource to help resolve conflicts. Explore issuing CORs to live-trappers and letters of

authorization to lethal trappers on the list to address problems outside the trapping season.

5. Maintain a list of seasoned trappers by county of interest (recommended by UTA) to harvest beavers as an option to resolve issues in high conflict areas during the trapping season. This list will be retained, updated and distributed by UDWR.
6. Use the brochure proposed in the Outreach and Education section of this plan (O1 S3) to inform landowners of the options available to address present and prevent future damage caused by beaver.
7. As agency personnel work through options for addressing present and preventing future damage caused by beaver, use the guideline (tiered approach) proposed in the Outreach and Education section of this plan (O2 S3).
8. Develop a nuisance beaver form and central database to track damage complaints (inter- and intra-agency) for the purpose of defining high conflict areas, tracking costs and effectiveness of methods.
9. Formalize the UDWR explosives program to ensure personnel are receiving appropriate training in line with policy. Coordinate beaver dam removal efforts within and among agencies to insure non-target species are not affected.
10. Generate a material list/specifications for constructing beaver deceivers and other non-traditional methods/devices to be used in highly visible sites to showcase long-term solutions and non-lethal techniques – NRCS as a possible funding source (Conservation Innovation Grants).
11. Develop an MOU between UDWR and USDA Wildlife Services for nuisance beaver management and response.

### Disease/Aquatic Nuisance Species Management

#### Objective 1:

Minimize the possibility of spreading aquatic diseases (e.g., whirling disease) and aquatic invasive species (AIS) (e.g., Quagga and zebra mussels, New Zealand mud snails and clams) from known contaminated sources to clean watersheds as a result of moving beaver between drainages through 2020.

#### Strategies:

1. Develop a beaver transplant protocol (similar to the fish stocking protocol) for use in screening source populations for transfer to other waters. Beavers will not be translocated from known waters containing whirling disease or ANS to waters believed to be clean.

## Objective 2:

Minimize the possibility of spreading aquatic diseases and AIS from known contaminated sources to clean watersheds as a result of lethal trapping used during control actions or recreational seasons through 2020.

### Strategies:

1. Develop gear decontamination protocol.
2. Include verbiage requiring adherence to decontamination protocol in all COR issued to nuisance wildlife companies.
3. Provide decontamination information via web or brochure to recreational trappers during the purchase of their furbearer license to encourage voluntary compliance with decontamination protocol.

## Research

### Objective 1:

Fund at least one research project related to beaver management by 2020.

### Strategies:

1. Evaluate proposals and provide support for beaver research.
2. Incorporate the collection of scientific information relative to beavers into the MOU with USDA Wildlife Services.

## Watershed Restoration

### Objective 1:

Work to improve riparian habitats, associated streams and wetlands in a minimum of 10 tributaries through translocating beaver into unoccupied suitable habitat on public and/or private land by 2020.

### Strategies:

1. Utilize the beaver source and transplant priority table appended to this plan when considering future translocation operations (Appendix 1).
2. Conduct site specific evaluations prior to introducing beaver to include consideration for the presence of suitable habitat, low risk of creating damage conflicts and the possibility of establishing barriers that may impede fish migrations.

3. Coordinate at the UDWR regional level with land management agencies to determine the level and need for environmental compliance (NEPA).
4. UDWR regional personnel will coordinate with local governments, land management agencies, private landowners and any other affected parties that have an interest (positive or negative) in the establishment of beaver populations within the watershed.
5. Develop at the UDWR regional level Habitat Authorization, Watershed Initiative project proposals, and other possible sources to fund site-specific beaver translocations for the purpose of restoring important statewide aquatic environments.
6. When possible, live trap and translocate entire family groups.
7. Generate a list of trained UDWR personnel that have an interest in live trapping beaver and use them as a resource to establish new populations. Explore issuing CORs to non-UDWR personnel for the purpose of assisting with live-trapping and translocation efforts. A base requirement for a COR would be the applicant's ability to demonstrate proficiency in live trapping and translocation. Proficiency would be demonstrated by successful completion of a UDWR-approved training program.
8. Incorporate live-trapping options into the MOU with USDA Wildlife Services.
9. Encourage land management agencies and private property owners to manage riparian habitat (aspen, willow and cottonwood) to support translocated beaver populations.
10. Select a level of harvest protection for translocated beaver populations from the Harvest Management Objective section (O1 S3abc).
11. If translocated beaver become a nuisance they will be dealt with utilizing strategies identified in the Damage Management section

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Appendix 1.

Statewide Beaver Transplant List Prioritized at UDWR Regional Level (page 1 of 6)

| <b>UDWR REGION</b> | <b>REGIONAL PRIORITY</b> | <b>TRANSPLANT SITE NAME</b>        | <b>COUNTY</b>   | <b>STREAM/DRAINAGE</b>                    | <b>LAND MANAGEMENT AGENCY OR PRIVATE PROPERTY OWNER</b> |
|--------------------|--------------------------|------------------------------------|-----------------|---|---|
| Southern           | 1                        | Pine Creek                         | Beaver          | Pine Cr, Beaver River                     | Fishlake National Forest                                |
| Southern           | 2                        | Duncan Creek                       | Beaver          | T28SR5W                                   | Fishlake National Forest                                |
| Southern           | 3                        | Hunt Creek                         | Beaver          | T29SR4-5W                                 | Fishlake National Forest                                |
| Southern           | 4                        | East Fork Boulder Creek            | Garfield        | Boulder Creek                             | USFS  |
| Southern           | 5                        | East and West Hunt Creeks          | Garfield        | Sevier River                              | USFS – Dutton   |
| Southern           | 6                        | Deer Creek                         | Garfield        | Deer Creek                                | USFS – Dutton   |
| Southern           | 7                        | Little Creek                       | Iron            | Little Creek/Escalante Desert             | Dixie National Forest/<br>T34SR7W                       |
| Southern           | 8                        | Deep Creek                         | Iron            | Deep Creek/Virgin River                   | Dixie National Forest/T37SR9W                           |
| Southern           | 9                        | Upper Kanab Creek                  | Kane            | Kanab Creek                               | USFS – Paunsaugunt                                      |
| Southern           | 10                       | East Fork Sevier River             | Garfield / Kane | Sevier River                              | USFS – Paunsaugunt                                      |
| Southern           | 11                       | Ipson Creek                        | Garfield        | Ipson/Panguitch/Sevier                    | Dixie National Forest/T35S,<br>R7W, sec 18              |
| Southern           | 12                       | Sandy Creek                        | Iron/Garfield   | Sandy Creek/Sevier River                  | USFS / BLM – Panguitch Lake                             |
| Southern           | 13                       | Left & Right Fork of Sanford Creek | Garfield        | Sanford Creek                             | USFS – Dutton   |
| Southern           | 14                       | Cottonwood Creek                   | Garfield        | Cottonwood Creek                          | USFS – Dutton   |
| Southern           | 15                       | Robinson and Swapp Canyons         | Kane            | East Fork Sevier                          | USFS – Paunsaugunt                                      |
| Southern           | 16                       | Bullrush Creek                     | Garfield        |   | USFS – Dutton   |
| Southern           | 17                       | Deep Creek                         | Garfield        | Deep Creek                                | USFS – Dutton   |
| Southern           | 18                       | Forest / Pine Creek                | Garfield        | Pine Creek                                | USFS – Dutton   |
| Southern           | 19                       | Swains Creek                       | Kane            | Swains Creek                              | USFS - Zion / Panguitch Lake                            |
| Southern           | 20                       | Bunker / Deer Creek                | Iron/Garfield   | Bunker Creek/Panguitch Creek/Sevier River | USFS - Panguitch Lake                                   |
| Southern           | 21                       | Calf Creek                         | Garfield        | Calf Creek/Escalante River                | BLM/GSENM Kaiparowits                                   |

Appendix 1. (continued)

Statewide Beaver Transplant List Prioritized at UDWR Regional Level (page 2 of 6)

| <b>UDWR REGION</b> | <b>REGIONAL PRIORITY</b> | <b>TRANSPLANT SITE NAME</b>         | <b>COUNTY</b> | <b>STREAM/DRAINAGE</b>            | <b>LAND MANAGEMENT AGENCY OR PRIVATE PROPERTY OWNER</b> |
|--------------------|--------------------------|-------------------------------------|---------------|-----------------------------------|---|
| Southern           | 22                       | Mountain Springs Fork               | Garfield      | Deep Creek                        | USFS – Dutton   |
| Southern           | 23                       | Smith Canyon                        | Garfield      | Manning Creek                     | USFS – Dutton   |
| Southern           | 24                       | Bear Creek                          | Iron          | Bear Creek/Sevier River           | Dixie National Forest/T32-33SR6-7W                      |
| Southern           | 25                       | Proctor Canyon                      | Garfield      | Sevier River                      | USFS – Paunsaugunt                                      |
| Southern           | 26                       | Thompson Creek                      | Kane          | Johnson Wash                      | BLM – Paunsaugunt                                       |
| Southern           | 27                       | Prospect Creek                      | Garfield      | East Fork Sevier                  | USFS- T33SR2.5 W  |
| Southern           | 28                       | Lost Creek                          |               | East Fork Sevier                  | USFS- T30SR3W   |
| Southern           | 29                       | East fork of Kanab Creek            | Kane          | Kanab Creek                       | USFS- T38SR4.5W   |
| Southern           | 30                       | Mill Creek                          | Kane          | East Fork Creek                   | USFS- T39SR4.5W   |
| Southern           | 31                       | Sieler Creek                        | Kane          | East Fork Creek                   | USFS- T38SR4.5W   |
| Southern           | 32                       | North Fork Corn Creek               | Millard       | Corn Creek                        | Fishlake National Forest                                |
| Southern           | 33                       | Chokecherry Creek                   | Millard       | Chalk Creek                       | Fishlake National Forest                                |
| Southern           | 34                       | Corn Creek, headwaters              | Millard       | Corn Creek                        | Fishlake National Forest                                |
| Southern           | 35                       | Pioneer Creek                       | Millard       | Pioneer Creek                     | Fishlake National Forest                                |
| Southern           | 36                       | Eagle Flat (Little Monroe Cr.)      | Sevier        | Monroe Creek                      | Fish Lake National Forest (T 26S, 2W)                   |
| Southern           | 37                       | Jump Creek                          | Sevier        | Salina Creek trib.                | Fish Lake National Forest (T20S & 21 S, 3E)             |
| Southern           | 38                       | Pine Creek                          | Sevier        | Salina Creek trib.                | Fish Lake National Forest (T21S, 3E)                    |
| Southern           | 39                       | Shingle Creek                       | Sevier        | Clear Creek trib.                 | Fish Lake National Forest (25S & 26S, 5W)               |
| Southern           | 40                       | North Creek                         | Sevier        | North Creek, by Sheep Valley Res. | Fish Lake National Forest (24S, 3E & 4E)                |
| Southern           | 41                       | Skumpah Creek                       | Sevier        | Salina Creek trib.                | Fish Lake National Forest (21S, 4E)                     |
| Southern           | 42                       | Last Chance Creek (north and south) | Sevier        | Last Chance Creek                 | Fish Lake National Forest (T25SR4E)                     |
| Southern           | 43                       | Willow Creek                        | Sevier        | Willow Creek                      | Fish Lake National Forest (T20-21SR2-3W)                |
| Southern           | 44                       | Manning Creek                       | Piute         | Manning Creek                     | Fish Lake National Forest (T27S, 2 1/2W)                |

Appendix 1. (continued)

Statewide Beaver Transplant List Prioritized at UDWR Regional Level (page 3 of 6)

| <b>UDWR REGION</b> | <b>REGIONAL PRIORITY</b> | <b>TRANSPLANT SITE NAME</b>            | <b>COUNTY</b> | <b>STREAM/DRAINAGE</b>                     | <b>LAND MANAGEMENT AGENCY OR PRIVATE PROPERTY OWNER</b> |
|--------------------|--------------------------|--|---------------|--|---|
| Southern           | 45                       | Shingle Creek                          | Piute         | Clear Creek Trib.                          | Fish Lake National Forest (25S &26S, 5W)                |
| Southern           | 46                       | Fish Creek, Headwaters                 | Piute         | Clear Creek Trib.                          | Fish Lake National Forest (27S, 5W)                     |
| Southern           | 47                       | City Creek                             | Piute         | City Creek                                 | Fish Lake National Forest/UDWR (29S, 4W)                |
| Southern           | 48                       | Box Creek                              | Piute         | Box Creek                                  | Fish Lake National Forest/T27SR2W                       |
| Southern           | 49                       | Center Creek                           | Iron          | Center Creek/Bowery Creek/Escalante Desert | Dixie National Forest/T35SR8W                           |
| Southern           | 50                       | Three Mile Creek                       | Garfield      | Three Mile Creek/Sevier River              | Dixie National Forest/T34SR6W                           |
| Southern           | 51                       | Water Canyon                           | Washington    | Water Canyon/Santa Clara                   | Dixie National Forest/T39SR15W                          |
| Southern           | 52                       | Dam Canyon                             | Washington    | Dam Creek/North Ash Creek/Virgin River     | Dixie National Forest/T38SR14W                          |
| Southern           | 53                       | Birch Creek                            | Piute         | Birch Cr, Sevier River                     | Fishlake National Forest                                |
| Southern           | 54                       | Birch Creek                            | Beaver        | Birch Cr, Beaver River                     | BLM, Fishlake National Forest                           |
| Southern           | 55                       | Deep Creek                             | Garfield      | Deep Cr, E Fk Sevier                       | Dixie National Forest                                   |
| Southern           | 56                       | Cottonwood Creek                       | Garfield      | Cottonwood Cr, E Fk Sevier                 | Dixie National Forest                                   |
| Southern           | 57                       | E Fk Sevier R & tribs above Tropic Res | Garfield/Kane | E Fk Sevier                                | Dixie National Forest                                   |
| Southern           | 58                       | Baker Springs,                         | Wayne         | Pine Cr, Fremont River                     | Fishlake National Forest                                |
| Southern           | 59                       | Elbow Ranch, Manning Creek             | Piute         | Manning Cr, Sevier River                   | UDWR, BLM   |
| Southern           | 60                       | Iant Creek                             | Beaver        | T28-29SR5W                                 | Fishlake National Forest                                |
| Southern           | 61                       | Lousy Jim Creek                        | Beaver        | T29SR5W                                    | Fishlake National Forest                                |
| Southern           | 62                       | North Creek                            | Beaver        | Beaver River                               | Fishlake National Forest                                |
| Southern           | 63                       | Wilson Creek                           | Beaver        | T29SR5-6W                                  | Fishlake National Forest                                |
| Southern           | 64                       | South Creek                            | Beaver        | Beaver River                               | Fishlake National Forest                                |
| Southern           | 65                       | Bull Rush Creek                        | Garfield      | T32SR4 1/2 W                               | Dixie National Forest                                   |
| Southern           | 66                       | Chokecherry Creek                      | Garfield      | T30.5SR5-6E                                | Dixie National Forest                                   |
| Southern           | 67                       | Lost Creek                             | Garfield      | T32SR4W                                    | Dixie National Forest                                   |

Appendix 1. (continued)

Statewide Beaver Transplant List Prioritized at UDWR Regional Level (page 4 of 6)

| <b>UDWR REGION</b> | <b>REGIONAL PRIORITY</b> | <b>TRANSPLANT SITE NAME</b>                  | <b>COUNTY</b> | <b>STREAM/DRAINAGE</b>                   | <b>LAND MANAGEMENT AGENCY OR PRIVATE PROPERTY OWNER</b> |
|--------------------|--------------------------|--|---------------|--|---|
| Southern           | 68                       | Mountain Springs Fork                        | Garfield      | T32SR3-4W                                | Dixie National Forest                                   |
| Southern           | 69                       | Sevier River, East Fork @ Dave's Hollow      | Garfield      | T36SR3W                                  | Dixie National Forest                                   |
| Southern           | 70                       | Smith Canyon                                 | Garfield      | T32SR4W                                  | Dixie National Forest                                   |
| Southern           | 71                       | Sweetwater Creek                             | Garfield      | T34SR1W                                  | Dixie National Forest                                   |
| Southern           | 72                       | Varney-Griffin Creek                         | Garfield      | T33-35SR1-2E                             | Dixie National Forest                                   |
| Southern           | 73                       | Sevier River, East Fork above Crawford Creek | Kane          | T38-39SR4.5-5W                           | Dixie National Forest                                   |
| Southern           | 74                       | Anderson Valley                              | Washington    | North Ash Creek/Virgin River             | Dixie National Forest/T38-39SR13-14W                    |
| Southern           | 75                       | Lost Creek                                   | Washington    | Lost Creek/Shoal Creek/Escalante Desert  | Dixie National Forest/T38SR18W                          |
| Southern           | 76                       | Pine Creek                                   | Washington    | Pine Creek/Shoal Creek/Escalante Desert  | Dixie National Forest/T37-38SR18-19W                    |
| Southern           | 77                       | Pine Park Spring                             | Washington    | Beaver Dam Was/Virgin River              | Dixie National Forest/T37SR19W                          |
| Southern           | 78                       | Rattlesnake Creek                            | Washington    | Rattlesnake/Shoal Creek/Escalante Desert | Dixie National Forest/T38S18W                           |
| Southern           | 79                       | Chokecherry Creek                            | Wayne         | T30SR5-6E                                | Dixie National Forest                                   |
| Southern           | 80                       | Elk Horn Guard Station                       | Wayne         | T27SR4E                                  | Fishlake National Forest                                |
| Southern           | 81                       | Moseman Lake                                 | Garfield      |  |   |
| Southern           | 82                       | Deer Creek Lake                              | Garfield      |  |   |
| Southern           | 83                       | Kings (Chris) Lake                           | Garfield      |  |   |
| Southern           | 84                       | Head of the East Fork of Boulder Creek       | Garfield      |  |   |
| Southeastern       | 1                        | Muddy Creek and Tributaries                  | Sanpete/Emery | Muddy Creek                              | USFS/Private-Castlevally Outdoors                       |

Appendix 1. (continued)

Statewide Beaver Transplant List Prioritized at UDWR Regional Level (page 5 of 6)

| <b>UDWR REGION</b> | <b>REGIONAL PRIORITY</b> | <b>TRANSPLANT SITE NAME</b>     | <b>COUNTY</b>       | <b>STREAM/DRAINAGE</b>       | <b>LAND MANAGEMENT AGENCY OR PRIVATE PROPERTY OWNER</b> |
|--------------------|--------------------------|---------------------------------|---------------------|------------------------------|---|
| Southeastern       | 2                        | Stone Cabin/Dry Canyon          | Carbon              | Nine Mile Canyon             | Private - Limpert/Pressett/BBC                          |
| Southeastern       | 3                        | North Cottonwood                | San Juan            | North Cottonwood Creek       | USFS/BLM  |
| Southeastern       | 4                        | South Cottonwood                | San Juan            | South Cottonwood Creek       | USFS/BLM  |
| Southeastern       | 5                        | Pondtown Creek                  | Carbon/Sanpete/Utah | Scofield                     | USFS  |
| Southeastern       | 6                        | Upper Fish Creek                | Carbon/Sanpete/Utah | Scofield                     | USFS  |
| Southeastern       | 7                        | Lower Coyote                    | San Juan            | Coyote Wash                  | BLM   |
| Southeastern       | 8                        | Diamond Canyon                  | Grand               | Diamond Canyon               | BLM   |
| Southeastern       | 9                        | Ford Creek                      | Carbon              | Price River                  | Private-Faussett  |
| Southeastern       | 10                       | Nash Wash                       | Grand               | Nash Wash                    | BLM   |
| Southeastern       | 11                       | Tavaputs Plateau                | Carbon              | Jack/Flat/Rock Creek Canyons | Private - Preston Nutter Ranch                          |
| Southeastern       | 12                       | Mcelmo Creek                    | San Juan            |                              | Navajo Tribal Lands                                     |
| Southeastern       | 13                       | Ferron Creek and Tributaries    | Sanpete/Emery       | Ferron Creek                 | USFS  |
| Southeastern       | 14                       | Cottonwood Canyon               | Grand               | Cottonwood Wash              | BLM   |
| Southeastern       | 15                       | Deadman Canyon                  | San Juan            | Unnamed Drainage             | USFS  |
| Central            | 1                        | Six-Mile Canyon                 | Sanpete             | Six-Mile Canyon              | USFS  |
| Central            | 2                        | Bennie Creek                    | Utah                | Bennie Creek                 | USFS  |
| Central            | 3                        | Nebo Creek                      | Utah                | Nebo Creek                   | USFS  |
| Central            | 4                        | Chicken Creek                   | Juab                | Chicken Creek                | USFS  |
| Central            | 5                        | Salt Creek                      | Juab                | Salt Creek                   | USFS  |
| Central            | 6                        | Manti Canyon                    | Sanpete             | Manti Canyon                 | USFS  |
| Central            | 7                        | Ephraim Canyon                  | Sanpete             | Ephraim Canyon               | USFS  |
| Central            | 8                        | Twelve-Mile Canyon              | Sanpete             | Twelve-Mile Canyon           | USFS  |
| Northern           | 1                        | Blacksmith Fork and Tributaries | Cache               | Curtis Creek and Rock Creek  | UDWR/USFS/*Private                                      |
| Northern           | 2                        | Logan Ranger District           | Cache/Rich          | All Rivers and Streams       | USFS  |
| Northern           | 3                        | Chalk Creek                     | Summit              | Chalk Creek and Tributaries  | *Private  |

\* With landowner approval, 1st transplant to areas with suitable habitat void of beavers, 2nd supplement areas of good habitat with low numbers of beaver.

Appendix 1. (continued)

Statewide Beaver Transplant List Prioritized at UDWR Regional Level (page 6 of 6)

| <b>UDWR REGION</b> | <b>REGIONAL PRIORITY</b> | <b>TRANSPLANT SITE NAME</b> | <b>COUNTY</b> | <b>STREAM/DRAINAGE</b>            | <b>LAND MANAGEMENT AGENCY OR PRIVATE PROPERTY OWNER</b> |
|--------------------|--------------------------|-----------------------------|---------------|-----------------------------------|---|
| Northern           | 4                        | East Canyon Creek           | Morgan        | East Canyon Creek and Tributaries | *Private  |
| Northern           | 5                        | North Slope Uinitas         | Summit        | Bear River                        | USFS  |
| Northern           | 6                        | North Slope Uinitas         | Summit        | Blacks Fork River                 | USFS  |
| Northern           | 7                        | North Slope Uinitas         | Summit        | Smiths Fork River                 | USFS  |
| Northern           | 8                        | North Slope Uinitas         | Summit        | Henry's Fork River                | USFS  |
| Northern           | 9                        | North Slope Uinitas         | Summit        | Beaver Creeks                     | USFS  |
| Northern           | 10                       | North Slope Uinitas         | Summit        | Burnt Fork River                  | USFS  |
| Northern           | 11                       | Basin Creek                 | Box Elder     | Basin Creek                       | *Private  |
| Northern           | 12                       | Cottonwood Creek            | Morgan        | Cottonwood Creek and Tributaries  | *Private  |
| Northern           | 13                       | Weber River Tributaries     | Morgan/Summit | Weber River Tributaries           | *Private  |

\*With landowner approval, 1st transplant to areas with suitable habitat void of beavers, 2nd supplement areas of good habitat with low numbers of beaver.