

**Forest Service Handbook
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**Forest Service Handbook 2609.13 – Wildlife and Fisheries Program Management Handbook
Chapter 50 - Timber Sale Area Improvement for Wildlife and Fisheries (Knutson-Vandenberg)**

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Date approved:

Responsible Staff:

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Digest: Following is an explanation of the changes throughout the directive by section.

This amendment is a reissuance of FSH 2609.13 to conform the format and structure of the Handbook to the requirements of electronic directive issuance.

70: Establishes new direction for conducting economic efficiency analysis of Wildlife and Fisheries projects.

This Handbook is now available electronically in the National Information Center in the same format as the paper copy. Henceforth, amendments to this Handbook will be issued to Forest Service units electronically on a document basis.

Table of Contents

50.1 - Authority.....	3
50.2 - Objective	3
50.3 - Policy	3
50.4 - Responsibility	3
50.41 - Line Officer	3
50.42 - Wildlife and Fisheries Biologists	4
51 - K-V Project Activities.....	4
51.1 - Wildlife Operations.....	4
51.11 - Wildlife Habitat Monitoring.....	4
51.12 - Wildlife Habitat Improvements	4
51.2 - Fish Operations	5
51.21 - Fish Habitat Monitoring.....	5
51.22 - Fish Habitat Improvements	5
51.3 - Threatened and Endangered Species Operations.....	6
51.31 - Threatened and Endangered Species Habitat Monitoring.....	6
51.32 - Threatened and Endangered Species Habitat Improvement	7
51.4 - Other Appropriate K-V Activities.....	7
51.5 - Inappropriate K-V Activities	7
52 - Wildlife and Fish Project Work Plans to Support the SAI Plans	7
52.03 - Policy	7
52.04 - Responsibility.....	7
52.04a - Wildlife and Fisheries Biologists	7
52.1 - Work Plan Requirements	8
52.11 - Define Project Objectives and Locations	8
52.12 - Describe Project Development Methods.....	10
52.13 - Evaluate Cost-Effectiveness of Projects.....	10
52.14 - Monitoring Project Plans.....	15
52.15 - Summarize Projects for Inclusion in SAI Plan.....	15
53 - K-V Project Management, Programming, and Execution	18
53.1 - Project Management	18
53.2 - Project Programming	18
53.3 - Sale Area Improvement (SAI) Plan Financing	18
53.4 - Project Execution.....	19
53.5 - Project Revisions	19
53.6 - K-V Project Management--Example.....	20

This chapter provides uniform guidance and procedures for biologists performing wildlife and fisheries habitat improvement under approved timber sale area improvement (SAI) plans. Use this direction, in conjunction with FSM 6510 and FSM 2477 to:

1. Be an effective part of SAI plan development and to respond to issues and management concerns identified in the environmental analysis process.
2. Describe priorities and work activities for threatened and endangered wildlife, game and nongame species, and fish habitats.
3. Track and update SAI plans to ensure that all wildlife and fisheries projects are subscribed, as planned, and that projects are accomplished.

50.1 - Authority

The Knutson-Vandenberg (K-V) Act of 1930, as amended by the National Forest Management Act of 1976, authorizes expenditure of K-V funds collected from timber sale purchases for certain wildlife habitat measures on timber sale areas. FSM 6512 and FSH 6509.11k, Service-wide Finance and Accounting Handbook, provide direction on collection and expenditure of K-V funds. FSM 2477 provides direction on use of K-V funds and preparation of sale area improvement (SAI) plans.

50.2 - Objective

To achieve wildlife and fisheries habitat improvement on timber sale areas through the development, implementation, and monitoring of SAI plans.

50.3 - Policy

Proposed projects using K-V funds for inclusion in SAI plans must be consistent with the objectives and management emphasis outlined for those areas in Forest Land and Resource Management Plans.

50.4 - Responsibility

50.41 - Line Officer

The responsible line officer shall:

1. Select objectives and activities based on the advice of wildlife and fisheries biologists and the interdisciplinary team.
2. Assign K-V project priorities to the proposed activities and list the projects in order of priority on Form FS-2400-50, Sale Area Improvement and K-V Collection Plan.

50.42 - Wildlife and Fisheries Biologists

Wildlife and fisheries biologists shall:

1. Evaluate the biological or habitat relationships within timber sale areas to determine specific objectives and opportunities for wildlife and fisheries habitat protection, mitigation, and enhancement.
2. Address identified needs on the sale area in the environmental assessment for the timber sale or the biologists' supporting reports.
3. Assist the responsible line officer by serving on the interdisciplinary team and developing appropriate narrative project work plans for inclusion or reference in the SAI plan.

51 - K-V Project Activities

The wildlife and fisheries habitat monitoring and habitat improvement project activities coded in this section are appropriate for sale areas improved with K-V funds (FSM 2477). K-V funds also may be used for administration, such as updating and activating SAI plans. Consider using K-V funds for other activities that are not listed but are needed to achieve wildlife and fisheries habitat protection or enhancement objectives. All work needed to meet the objectives should be listed. Sale bids may significantly change estimated collections and permit the updating of the SAI plan after a sale is made.

51.1 - Wildlife Operations

51.11 - Wildlife Habitat Monitoring

Surveys to monitor or evaluate treatments supported by specific plans are designed to evaluate progress toward meeting habitat capability objectives in the sale area. Use surveys for monitoring species that have a limited range, and therefore, can be evaluated effectively on the sale area. Use administrative studies to monitor species having larger ranges (FSM 1991 and FSM 2622).

51.12 - Wildlife Habitat Improvements

1. Structural Improvement. This activity involves construction, such as nesting boxes, cavities, and platforms, and may include:
 - a. Construction of perching or roosting structures.
 - b. Construction or improvement of water catchments, impoundments, and springs.

c. Construction of fences to exclude domestic livestock or wild ungulates from important wildlife habitats.

d. Habitat access control by closure. This activity involves barrier construction, signing, gating, or rehabilitation of existing roads in the sale area that are not needed for periodic resource management.

2. Nonstructural Improvement. This activity involves vegetative management, such as prescribed burning, pruning, chaining, fertilizing, thinning, and cutting, to maintain life stage and habitat diversity needs. Additional activities include:

a. Planting or seeding of plant species for wildlife food and cover.

b. Placing downed, woody material in burns, clearcuts, meadows, or other openings where such habitat is unavailable.

c. Developing potholes.

d. Reconstructing game trails on road cuts and fills where new roads, within sale areas, have interrupted existing game travel routes.

e. Creating snags to meet snag retention and management objectives.

51.2 - Fish Operations

51.21 - Fish Habitat Monitoring

Surveys to monitor or evaluate treatments supported by specific plans are designed to evaluate progress toward meeting habitat capability objectives in the sale area. Use surveys for monitoring species that have a limited range, and therefore, can be evaluated effectively on the sale area. Use administrative studies to monitor species having larger ranges (FSM 1991 and FSM 2622).

51.22 - Fish Habitat Improvements

1. Structural Improvement. This activity involves instream habitat improvement projects, such as fish ladders for fish passage or structures for bank stabilization, current deflection, or pool enhancement, as well as the final design and preparation of contract specifications of these projects. Additional activities include:

a. Developing fish covers.

b. Constructing and improving reservoirs or ponds.

- c. Constructing spawning facilities.
- d. Constructing fish screens.
- e. Replacing or modifying culverts to promote watershed stabilization and fish passage to the extent that these activities cannot be financed from road construction/reconstruction funds.
- f. Fencing riparian areas or using other devices to exclude livestock.
- g. Habitat access control by closure. This activity involves barrier construction, signing, gating or rehabilitation of existing roads in the sale area that are not needed for periodic resource management.

2. Nonstructural Improvement. This activity involves riparian zone management, including plantings, to foster such long-term objectives as increasing stream production, obtaining optimum water temperature regimes, fostering vegetative diversity, providing pool-forming woody debris, and developing old-growth stand characteristics. Other examples include:

- a. Seeding and stabilizing eroding banks to meet fine sediment objectives for fish habitat through watershed stabilization and erosion control.
- b. Removing or modifying stream barriers where fish migration problems exist.
- c. Controlling aquatic plants.
- d. Fertilizing fish habitats.
- e. Improving spawning beds.

51.3 - Threatened and Endangered Species Operations

Generally, coordinate habitat management for threatened, endangered, or sensitive wildlife, fish, and plant species with the U.S. Department of the Interior, Fish and Wildlife Service, and State fish and wildlife agency personnel. Follow recovery plans, special management plans, and habitat management techniques and recommendations as appropriate.

51.31 - Threatened and Endangered Species Habitat Monitoring

These activities, supported by specific plans, are designed to evaluate progress toward meeting habitat capability objectives in the sale area. Use surveys for monitoring species that have a limited range, and therefore, can be evaluated effectively on the sale area. Use administrative studies to monitor species having larger ranges (FSM 1991 and FSM 2622).

51.32 - Threatened and Endangered Species Habitat Improvement

1. Structural Habitat Improvement. See sections 51.12 and 51.22.

2. Nonstructural Habitat Improvement. In addition to activities detailed in section 51.12 and section 51.22, site preparation or vegetation control for protection of sensitive plants, and sensitive plant reintroduction and artificial propagation may be conducted with K-V funds.

51.4 - Other Appropriate K-V Activities

K-V funds may be used to develop project specifications, final design, and for contract preparation. Preliminary project work items, including general structure descriptions, should be described and geographically located in sufficient detail (sec. 52) to ensure that work is carried out as originally planned.

51.5 - Inappropriate K-V Activities

Do not fund preliminary surveys and presale preparation of Sale Area Improvement (SAI) or other plans with K-V collections.

Protection, operation, and maintenance of completed SAI projects, such as structures, or annual operation of the Forests' travel plans, are not approved K-V activities. Include them in the regular Forest protection and maintenance program for the benefiting functions. Advance planning is necessary to include these maintenance and operation costs in requested appropriations. Also, during planning of structural habitat improvement projects, consider how future maintenance will be accomplished with protection and management funds.

52 - Wildlife and Fish Project Work Plans to Support the SAI Plans

52.03 - Policy

Describe in detail and locate geographically all preliminary project work items, including general structures.

52.04 - Responsibility

52.04a - Wildlife and Fisheries Biologists

1. Prepare plans of work based on interdisciplinary negotiation, participation in decisionmaking, and coordination with other disciplines, products, and schedules of work.

2. Negotiate the level of detail required in work plans versus costs and benefits of saving time with line officer.

52.1 - Work Plan Requirements

52.11 - Define Project Objectives and Locations

Each work item, activity, or structure should support a project objective. Describe the location of the item, activity, or structure in sufficient detail (using maps, references landmarks, and the like) so that other personnel can accomplish the work, if personnel changes occur (exhibit 01).

52.11 - Exhibit 01

Narrative of Proposed Improvement Projects

The following K-V Habitat Improvement Projects are proposed for the Unameit Sale Area:

Proposal:

1. Moose Habitat Improvement - Slash and burn 200 acres to provide desirable forage areas for moose in stands 302-5-4, 5-5, 5-7, and 5-9 (locator stand 302-5-4).
2. Plant willows on skid trails and along edges of streamside cutting units (10 acres) to a density of 10,000 trees per acre (locator stand 302-5-5).
3. Close five extraneous side roads with earthen barriers, as identified on the attached work map (locator stand 302-5-6). (Roads were not used by purchaser.)
4. Install raptor perch structures and cavity nest structures for nongame birds on trees identified along boundaries of units 302-5-4, 5-5, 5-7, and 5-9 (40 structures) (locator stand 302-5-9).
5. Debris removal and channel cleanup in Blue Creek, adjacent to locator stand 302-5-4 and between roads No. 4927 and No. 208 (16 acres). (Debris did not come from sale activities but is within sale area.)
6. Complete post-treatment monitoring to evaluate effects of treatments in achieving habitat capability objectives defined for the sale area. (Support this activity with a specific survey plan that identifies what data will be collected and what will be done with the data to benefit the current project, as opposed to building a data base for subsequent projects.)

52.12 - Describe Project Development Methods

1. Explain each work activity.
 - a. Specify acres or number of units to be treated for each work item.
 - b. Provide sketches or pictures of the desired structure or vegetative condition.
 - c. Cite reference material that describes methods and structures.
2. Discuss the feasibility of the activities.
 - a. Consider access.
 - b. Consider logistics.
3. List the priority of work by activity.
4. Break the project into phases. Provide schedules to facilitate completion of related activities and to allow accomplishment of the project at appropriate times.

52.13 - Evaluate Cost-Effectiveness of Projects

Estimate project costs. Consider the following items and detail them by work activity category and personnel skill code:

1. Specifications (site surveys) preparation.
2. Final design preparation.
3. Contract preparation.
4. Mobilization.
5. Costs per item.
6. Monitoring of effects.
7. Outputs in terms of habitat capability changes.
8. Total cost per output unit.

Exhibits 01, 02, 03, and 04 illustrate how costs are calculated for some of the most commonly used habitat improvement practices.

52.13 - Exhibit 01

Example of How Slash Treatment Costs are Calculated

Costs:

Slashing

Crew Time

GS-7, 7.60/hr. \$61/day	= \$ 61.00/day
GS-4, 5.27/hr. \$42/day x 2	= \$ 84.00/day
	\$145.00/day

Vehicle

6-passenger crew cab	= \$ 16.50/day
Gas (20-gal. tank x \$1.50/gal. = \$26/day with one fill-up/week)	= \$ 5.00/day
Oil and maintenance	= \$ 3.50/day
	\$ 25.00/day

Supplies and Equipment

Chainsaw maintenance, gas, oil	= \$ 15.00/day
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Total

Slash approximately 2 acres/day	= \$90.00/acre
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52.13 - Exhibit 02

Example of How Prescribed Burning Costs are Calculated

Costs:

Burning

Crew Time

Overhead	= \$ 100.00/day
GS-7, 7.60/hr., \$61/day x 2	= \$ 122.00/day
GS-4, 5.27/hr., \$42/day x 6	= \$ 253.00/day
	\$ 475.00/day

Vehicle

6-passenger crew cab at \$16.50/day x 2	= \$ 33.00/day
Gas (20-gal. tank x \$1.50/gal. = \$26/day with one fill-up/week)	= \$ 5.00/day
Oil and Maintenance	= \$ 4.00/day
	\$ 42.00/day

Supplies and Equipment

Chainsaws, gas, oil, propane, diesel	= \$ 83.00/day
	\$600.00/day

Burn approximately 40 acres/day	= \$ 15.00/acre
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Moose Habitat Improvement Summary:

Slashing	= \$ 90.00
Burning	= \$ 15.00
Total cost/acre	= \$ 105.00
Overhead and Indirect (48%)	= \$ 50.00
TOTAL	= \$155.00/acre

Elk Habitat Improvement Summary:

Winter range burning	= \$ 15.00/acre
Overhead and indirect (48%)	= \$ 7.00/acre
TOTAL	= \$ 22.00/acre

52.13 - Exhibit 03

Example of How Road Closure and Raptor Perch Construction Costs are Calculated

Costs:

Road Closures

Permanent closures with earthen barriers.

Approximately \$350/road to cover cost of machinery and operators.

Costs:

Perch Tree Improvement Project

One structure per acre. Assuming crew of four can cut and install 40 structures per week.

Crew Time

GS-4, \$5.27/hr.	= \$ 42.16/day
GS-3, \$4.70/hr., \$37.60/day x 3	= \$ 112.80/day
	\$ 155.00/day
	x 5
	\$ 775.00/week

Vehicle

6-passenger crew cab	= \$ 16.50/day
Gas (20-gal. tank x \$1.50/gal.	= \$ 26.00/day
with one fill-up/week)	= \$ 5.00/day
Oil and maintenance	= \$ 3.50/day
	\$ 25.00/day

40 structures	= \$ 900.00/week
Total Cost	= \$ 22.50/structure
Overhead and indirect (48%)	= \$ 10.80
TOTAL	= \$ 33.00/acre

52.13 - Exhibit 04

Example of How Planting Costs are Calculated

Costs:

Sprigging

Rooted Sprigs

Assume 2' x 2' spacing = 10,000 trees/acre

Rooted sprigs = \$ 350.00/acre

Assume a four-man crew can plant
approximately 4 acres/day = \$1,400.00/day

Crew Time

GS-4, 5.27/hr. = \$ 42.16/day

GS-3, 4.70/hr. \$37.60/day x 3 = \$ 112.80/day

\$ 155.00/day

Vehicle

6-passenger crew cab = \$16.50/day

Gas (20-gal. tank x \$1.50/gal.= \$26/day

with one fill-up/week) = \$ 5.00/day

Oil and maintenance = \$ 3.50/day

\$ 25.00/day

\$ 1,580.00/day

Plant approximately 4 acres/day = \$ 395.00/acre

Overhead & Indirect (48%) = \$ 190.00

TOTAL = \$ 585.00/acre

Costs taken from Cost Data Guide for Engineering and Road Construction (January 9, 1981).

52.14 - Monitoring Project Plans

Outline hypotheses to be evaluated (with defined levels of success or failure), proposed methods, sampling design, analysis procedures, and necessary reports, and management feedback. Also, specify the time required to evaluate project results. If more than 5 years will be needed, request Regional Forester approval.

52.15 - Summarize Projects for Inclusion in SAI Plan

List each treatment activity separately, according to priority, on Form FS-2400-50, Sale Area Improvement and K-V Collection Plan (exhibit 01). Summarize each activity (at each administrative level) according to the following:

1. Appropriation Code.
2. Units of work.
3. Cost per unit, including projected inflation.
4. Number of units.
5. Total cost, including overhead (at each administrative level).

Use Form FS-1900-4, Project Work Plan, as an aid to this process. If this plan has been prepared, a cursory review for accuracy suffices for the project to be included in the District's or Forest's budget request process. (See FSM 2423 and FSM 6522 as supplemented locally; contact local administrative staff for specific instructions.)

52.15 - Exhibit 01

SEE THE PAPER COPY OF THE MASTER SET.
FOR SECTION 52.15 - EXHIBIT 01.

52.15 - Exhibit 01--Continued

SEE THE PAPER COPY OF THE MASTER SET.
FOR SECTION 52.15 - EXHIBIT 01.

53 - K-V Project Management, Programming, and Execution

53.1 - Project Management

Submit the detailed narrative and project work plans to the person responsible for preparing the Sale Area Improvement (SAI) plan. That person (usually the District Silviculturist) records the plan on Form FS-2400-50, Sale Area Improvement and K-V Collection Plan, at the priority ranking agreed upon by the interdisciplinary team and the Forest Supervisor or District Ranger. Once the sale is sold, update the SAI plan to reflect an increase or decrease in funds available for collection, or changes in priorities. The SAI plan becomes part of the timber sale report and, as such, it can be reviewed periodically and included in the District program.

53.2 - Project Programming

K-V funds are collected and deposited into a continuing "no-year" trust fund.

Funds of this type come under much scrutiny, and District and Forest biologists should ensure that sufficient funds and wildlife and fish habitat improvement targets are requested, during fiscal year program formulation (generally 2 years in advance), to allow completion of the entire desired Sale Area Improvement (SAI) plans to the extent permitted. To accurately program funds and targets, SAI wildlife and fisheries project work should be documented when the sale is purchased. Annually, review updated SAI plans, update work plans, and summarize projects on each Forest, to make informed and reliable Regional program funding and target requests to the Chief. Each District, in executing the available budget, summarizes the Project Work Plans in the desired SAI plans.

Submit these summaries to the Supervisor's Office. The Forest management team reviews and approves each District's program, depending on Forest priorities and funds available.

53.3 - Sale Area Improvement (SAI) Plan Financing

The statement of account for the timber sale includes the SAI Plan amount of the K-V financed total cost for items in column 14b on Form FS-2400-50, Sale Area Improvement and K-V Collection Plan. As timber is cut and paid for, funds are deposited to the K-V account. An earned transfer of funds from the timber sale account to the K-V account occurs at least quarterly. This transfer must occur before collections can appear on the financial statement (FSM 6510).

Funds collected from timber sales accumulate in a pooled account (or accounts). The intent of the pool is that the funds available for cash sale on the Forest do not need to be maintained separately for each sale and it allows for balancing the deficits and surpluses of authorized work. Management of the planned items on the FS-2400-50, Sale Area Improvement and K-V Collection Plan, and the financing priorities ensures that large, over-subscriptions to the K-V funds do not occur.

Item 9 on form FS-2400-50, Sale Area Improvement and K-V Collection Plan, lists treatments by priority. If anticipated collections appear insufficient to finance the work items, drop the low-priority items from K-V financing and program them for appropriated funding. (Note: Many sales, during low market conditions, can finance only work items included in base rates, and projects other than essential reforestation should not be considered for K-V fund applications.) Until the sale is closed, retroactive conversions of other distributions may provide funds for K-V plans, up to an amount equal to that being returned to the U.S. Treasury. See FSH 6509.11k, Service-wide Finance and Accounting Handbook, for additional details.

Most Forests already have considerable over-subscriptions of total pool funding, and must plan to balance K-V fund requests with expected collections. When work items are dropped from K-V plans, update the list of K-V projects to show the work items as K-V unfunded and submit the work for appropriated funding, or drop the work item entirely. It is not absolutely necessary for timber sale operations to be in progress before work can be accomplished on a sale; in fact, it may be necessary to perform work during a specific season, in response to an objective, even though sale operations are not in progress, but it is necessary to ensure that funds are available in the pool and that the sale will at some point generate the funds needed (see FSM 6510).

Review plans at least annually to ensure that:

1. Units of work reflect the total job to be accomplished.
2. Priorities for funding are current with management direction.
3. Cost per unit reflects current cost trends and estimating procedures.
4. Sufficient funds are available to fund work items on the plan.
5. Adequate collections have been made.

53.4 - Project Execution

When the District receives its final budgets and targets, phase in the project through staff scheduling of appropriate tasks and skills, as indicated in the narrative program of work. After completion of the project, monitor and perform necessary evaluations to ensure that the project meets increased habitat effectiveness and capability objectives.

53.5 - Project Revisions

Make project revisions before sale closure. To revise a project, change Form FS-2400-50, Sale Area Improvement and K-V Collection Plan, assign new priorities, and rewrite the supporting narrative to reflect the new activities. Include an addendum to the environmental analysis, if the revision changes the scope and objectives of the original project, which in turn substantially

change project impacts. The timber sale contracting officer (Forest Supervisor or District Ranger) must approve revision.

53.6 - K-V Project Management--Example

Region 1 has incorporated the documentation of wildlife and fish K-V projects into a timber management data base. Each project is referenced to a timber sale contract number and an adjacent timber stand. Region 1 has chosen to identify annual fund amount, targets, and planned accomplishment year. The categories Region 1 documents are:

1. Project activities in relation to the stand closest or central to the work being done (using a stand identification/locator system).
2. 2600 for wildlife projects, 2650 for fisheries projects.
3. Fiscal year planned.
4. Fund availability (using one code, if enough stumpage is generated to fund the work, and another code, if K-V funds are not presently available).
5. Activity unit of measure (abbreviated to one letter, such as "A" for "acres" and "S" for "structures").
6. Number of planned accomplishment activity units.
7. Total cost in thousands of dollars planned or expended for the project that relates to the identified map location. (The smallest amount is \$1,000, and the largest amount is \$999,900.)
8. Sale contract number, to identify the approved K-V plan supporting the work.
9. Fiscal year and month accomplished.

Summaries of information for program planning and budgeting purposes are obtained from the Forest or District computer specialist. By using the contract number, K-V project information can be linked to the automated timber sales accounting system statement of account. This linkage permits the retrieval of the current status of K-V collections for the timber sale.