RANGELAND PLANNING

PURPOSE

Rangeland planning shall prescribe management providing sustainable, natural ecosystems for a variety of values and uses. All planning efforts shall:

- Develop clear, concise objectives that portray desired conditions of rangeland resources for the area involved.
- Develop livestock management strategies that achieve objectives, moving rangeland resources towards desired conditions.
- Develop monitoring standards that enable managers to determine progress towards desired conditions and to make proper management adjustments.
- Provide for permittee involvement, understanding, and commitment for management objectives.

LEGAL REQUIREMENTS

Numerous federal laws, regulations, and policies provide guidance for rangeland planning.

THE RESCISSION ACT OF 1995

The Forest Service is required by Section 504 of the Rescissions Act of 1995[1] to develop and successfully implement schedules for the completion of National Environmental Policy Act (NEPA) analysis and documentation on all allotments. Completing NEPA requirements and the resultant allotment management plans is a high priority within our agency and is the focus of this chapter.

[1] P.L. 104-19, Section 504

Federal Land Policy Management Act and Public Rangeland Improvement Act

The Federal Land Policy Management Act of 1976 (FLPMA),[2] as amended by the Public Rangelands Improvement Act of 1978 (PRIA),[3] allows for inclusion of allotment management plans (AMP) in grazing permits at the discretion of the Secretary of Agriculture.[4] The Secretary exercised this discretion and delegated his authority to issue regulations in this area to the Chief of the Forest Service.[5]

An allotment management plan is defined in FLPMA and PRIA as a document prepared in consultation with permittees applying for livestock operations on the public lands prescribing:[6]

- the manner in and extent to which livestock operations will be conducted in order to meet multiple use, sustained-yield, economic, and other needs and objectives;
- range improvements to be installed and maintained; and
- containing such other provisions relating to livestock grazing and other objectives found by the Secretary to be consistent with the provisions of the FLPMA.

National Forest Management Act

The National Forest Management Act of 1976 (NFMA) directed preparation of Forest Land and Resource Management Plans on every National Forest. Forest Land and Resource Management Plans, commonly referred to as Forest Plans, provide broad direction for all resource planning and activities. Rangeland project planning implements this direction through site-specific analysis of the rangeland resource.

National Environmental Policy Act

The National Environmental Policy Act of 1969 (NEPA), and subsequent Council on Environmental Quality (CEQ) regulations, direct all federal agencies to implement a standardized process for analysis and documentation of environmental effects of a proposed action and alternatives to the proposed action. The Act requires scoping of issues, interdisciplinary team involvement in analysis and alternative development, and documentation of the analysis in an Environmental Impact Statement (EIS) or Environmental Assessment (EA). The Council on Environmental Policy Regulations[7] and the Environmental Policy and Procedures Handbook[8] contain requirements for implementing NEPA.

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2 P.L. 94-579, 90 Stat. 2743, as amended

3 P.L. 95-514, 92 Stat. 1806

4 43 U.S.C.(1752(d)), as amended by 92 Stat. 1803 (1978)

5 36 CFR (222.1 et. seq.)

6 43 USC (1702(k)), 36 CFR (222.1 (b) (2)), and FSM 1023

7 40 CFR Parts 1500-1508

8 FSH 1909.15

THE ENDANGERED SPECIES ACT

The Forest Service is bound by Endangered Species Act (ESA) requirements. Figure 2-1 illustrates the integration of ESA and NEPA. Section 7 of ESA[9] states:

> "Each federal agency shall, in consultation with and with the assistance of the Secretary [Interior] insure that any action authorized, funded or carried out by the agency is not likely to jeopardize the continued existence of any endangered or threatened species or result in adverse modification of their critical habitat."

Section 7 applies to any discretionary action including granting easements, licenses, permits, and rights-of-way.

In order to fulfill its obligations under ESA, the Forest Service must consult with the U.S. Fish and Wildlife Service or the National Marine Fisheries Service (FWS/NFMS) and provide all pertinent project and species data necessary for them to evaluate the proposed action and its potential to jeopardize federally listed species and/or critical habitat designated by the FWS/NFMS. In order to comply with the ESA, agency personnel must:

1. Obtain a list of threatened, endangered, and proposed species. Contact the FWS to obtain a list of federally listed and proposed species in the action area or that the action potentially affects.

2. Prepare a Biological Assessment (BA). If Federally listed species or designated critical habitats are present in the affected area, prepare a Biological Assessment of the effect of the proposed action on Federal land and also the effects that might occur on private land.[10] The Act requires that a determination be made in the Biological Assessment whether the action has:

   - no effect on, or
   - may affect

   the listed species and/or designated critical habitat. Biological Assessments must be approved by journey level (GS-11 and above) biologists and botanists.

3. If a "no effect" conclusion is reached and the action does not involve a major construction project nor an EIS, consultation with the FWS is not required under the law and the action may proceed.[11] A "may affect, not likely to adversely affect" requires informal consultation and subsequent written concurrence from FWS/NFMS. FWS/NFMS does not have any specific time frame in which to conclude the informal consultation process unless the action requires an EIS, which then requires a 30-day response from FWS/NFMS. A draft Biological Opinion is frequently desirable and can help develop terms and conditions incorporated into the planning process.

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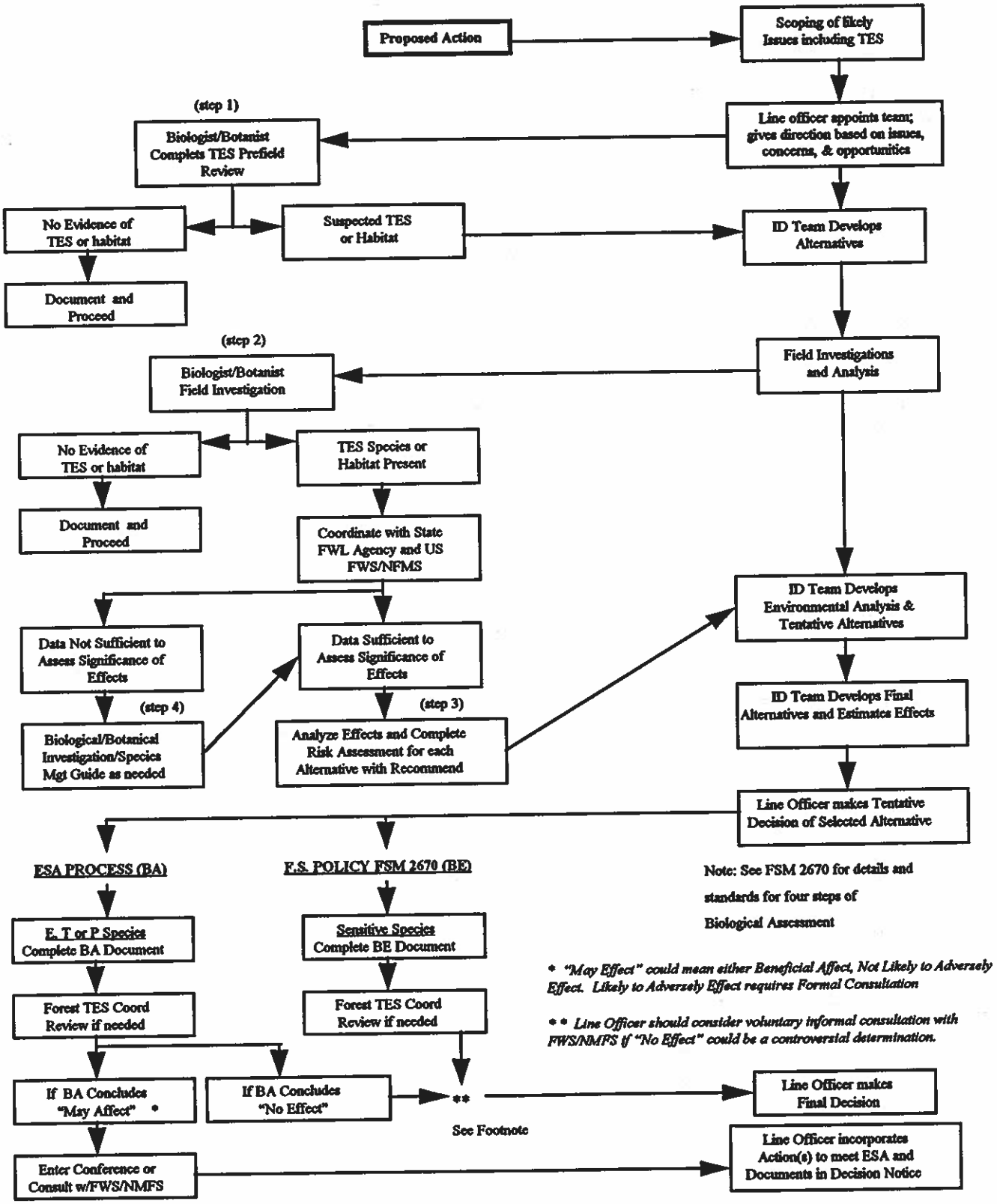
[9] 16 U.S.C. 1536(a)(2)

[10] 50 CFR 402.02

[11] 50 CFR 402.11L

Figure 2-1. INTEGRATING ESA and NEPA



4. A determination "may affect, likely to adversely affect" requires formal consultation. Formal consultation, which must be initiated by the Forest Supervisor, requires the FWS/NFMS to prepare a biological opinion. It must be delivered to the agency within 45 days of the conclusion of a 90-day consultation period, except where both agencies mutually agree to an extension. While informal or formal consultation is in progress, the agency must not make an irreversible commitment of resources that would foreclose implementation of alternate measures designed to avoid jeopardy.

The taking of a threatened or endangered species is prohibited by provisions of the ESA. However, the ESA does allow an "incidental take" provision that may be issued as part of the Biological Opinion allowing for takings that are incidental to the action and only under the terms and conditions provided in the Biological Opinion.

If the Biological Opinion states that the action is not likely to jeopardize the continued existence of the species or to result in the destruction or adverse modification of its critical habitat, proceed with the proposal. If appropriate, incorporate the FWS/NFMS conservation recommendations into the proposal. The preparing unit should notify FWS/NFMS in writing of the implementation of conservation recommendations and must document the results of the formal consultation in the appropriate NEPA document. If FWS/NMFS plans to render a jeopardy opinion, the FWS/NFMS will contact the Forest Supervisor to discuss any reasonable and prudent alternatives.

Forest Service directives[12] provide additional direction on requirements for compliance with ESA. Proposed species require *conferencing* as opposed to *consultation* under Section 7 of ESA. FSM 2670 should be reviewed to ensure compliance of proposed species that are also protected under the Act.

Under section 7 of the Endangered Species Act (ESA), "applicants are those persons (including, among others, individuals, corporations, partnerships trusts, and associations) who require formal approval or authorization from the Forest Service as a prerequisite to conducting an action covered by the ESA. Term permittees of range allotments may be considered applicants during formal consultation. Applicants have an opportunity to submit written information for consideration, to consent to extensions of the consultation, to request and comment on the contents of a draft Biological Opinion issued by the Fish and Wildlife Service or the National Marine Fisheries Service (FWS/NMFS). Keep in mind, in most cases, concerns over impacts on threatened or endangered species will be resolved during informal consultation, and applicant status will not apply. If formal consultation is necessary, forests should inform the permittee of his/her rights in the process. Permittees are then required to request applicant status through the Forest Supervisor, who represents the "action" agency during the consultation process. See Appendix A for a policy

12 FSM 2670

letter clarifying the roles of the Forest Service, applicants and the FWS/NMFS during formal consultation.

Sensitive species are designated by the Regional Forester. Requirements for protection and management are not addressed in the ESA but are provided by Forest Service policy.[13] Key requirements for sensitive species are:

1. A Biological Evaluation (BE) must be prepared to review proposed Forest Service actions to determine their potential effect on sensitive species.
2. Biologists or botanists must make a determination of:
   - no impact,
   - beneficial impact,
   - may impact individuals but not likely to cause a trend toward Federal listing or loss of viability, or
   - likely to result in a trend toward Federal listing or loss of viability.
3. Forest Supervisors are required to ensure compliance with procedural and biological requirements for sensitive species and to develop quantifiable objectives for managing populations and/or habitat for sensitive species. A key responsibility is developing and implementing management practices to ensure those species do not become threatened or endangered because of Forest Service actions.

Refer to Standards for Biological Evaluations[14] and Procedures for Conducting Biological Evaluations[15] for more information.

Although many requirements of the Endangered Species Act (and Sensitive Species policy) are completed by biologists and botanists, the rangeland manager must be actively involved to coordinate this effort within the scope and time frames of the overall planning process. Range personnel should be involved where necessary to conduct inventories, delineate livestock use patterns, or supply any other rangeland information to be used in Biological Evaluations and Assessments.

Programmatic Biological Assessments and Evaluations for certain species have been completed for livestock grazing. When initiating a new rangeland management activity, a qualified biologist or botanist must first determine if the existing BA or BE is adequate for the site specific activities being proposed. If the programmatic BA or BE is adequate this should be documented in the NEPA document and no further documentation or analysis is needed. If the programmatic document is not considered adequate then a new or modified BA or BE is needed in order to comply with ESA.

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[13] FSM 2672.42

[14] FSM 2672.42

[15] FSM 2672.43

NATIONAL HISTORIC PRESERVATION ACT

Under the statutory definitions of the 1992 amendments to the Act, grazing permits and livestock management activities are subject to the requirements of Section 106 of the Act.[16] The implementing regulations that apply to livestock grazing activities are found at 36 CFR Part 800. A National Programmatic Agreement (PA) on grazing between the Advisory Council on Historic Preservation and the Forest Service establishes options for meeting the requirements of Section 106 of the Act. PA text can be found in Forest Service directives.[17] Pursuant to Stipulation 2.c. of the PA, State Historic Preservation Officers within the Pacific Southwest Region have signed a Memorandum of Understanding (MOU) with the Regional Forester documenting the specific requirements necessary in rangeland planning. Refer to this MOU[18] for specific requirements related to grazing permit issuance, allotment management plans, and rangeland improvements.

CLEAN WATER ACT

Primary responsibility for protecting water quality rests with the States.[19] Section 313 of the Act[20] requires Federal agencies to comply with all substantive and procedural State water quality requirements to the same extent as any non governmental entity. Refer to interim directives[21] for a listing of specific rangeland management requirements related to the Clean Water Act.

COORDINATION, COOPERATION, AND CONSULTATION

Proper rangeland planning requires close cooperation and consultation with a variety of National Forest and National Grassland users and interested publics. Planning must emphasize the diverse values of Americans who rely on public rangelands to help maintain biodiveristy, for recreation and economical stability. While federal laws are clear in their requirements for consultation, it remains the sole responsibility of the Forest Service line officer to make range management decisions, including how much grazing will be allowed on National Forest System administered lands.

INTERDISCIPLINARY TEAM INVOLVEMENT

Be sure that adequate internal communication and coordination occur early in the planning process. Ensure an interdisciplinary process in all steps of rangeland planning. Involvement of the interdisciplinary team (IDT) will ensure that all resources are considered and that resource conflicts are minimized. Composition of the IDT should reflect the various issues to be resolved. For example, an aquatic biologist and/or a hydrologist should be a member of the team when riparian or fisheries values

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16 As amended 16 U.S.C. 470

17 FSM 1539.61

18 See Appendix E

19 As amended 33 U.S.C. 1251 et seq.

20 33 U.S.C. 1323

21 Interim Directive 2209.13-96-1

are of importance. In some cases, IDT members may accomplish (or help accomplish) some of the evaluation studies. Current planning direction prohibits non Forest Service participants from serving as formal ID team members.[22]

Cooperation with Permittees

The grazing permittee is integral to any successful rangeland management program. The permittee has a great deal of information as to what is practicable and workable concerning handling of livestock, practicality of grazing systems, and proper location and type of range improvements. The success or failure of the management program will largely be determined by the permittee's willingness to carry out the plan. Consequently, the use of National Forest System rangeland in relation to the rancher's total operation is a fundamental necessity.

Permittee cooperation is essential and their involvement in the planning process is provided for in the Federal Land Policy and Management Act. Permittees should be brought into most phases of the planning process.

Coordination with Others

Perhaps the most essential aspect of planning is to recognize the multitude of values and uses on rangelands, and to strive to develop management actions that correspond to the needs and desires of a diverse society. Rangelands are used by hunters, anglers, hikers, photographers, off-road vehicle enthusiasts, sightseers, and others. Americans have a keen interest in how public lands are managed. For these reasons, local individuals, user groups, and other agencies must be offered the opportunity to be involved in rangeland planning. Identify interested publics before initiating planning and involve them throughout the process, including the development of management opportunities that help formulate proposed actions. Public land users bring invaluable suggestions and boundless energy to the planning process.

Coordinated Resource Management Planning

Coordinated Resource Management Planning (CRMP), is a formal process designed to bring all interested parties into a joint planning effort. CRMP efforts are particularly appropriate when dealing with opportunities or potential effects across multiple ownerships and jurisdictions. CRMP is most effective when initiated early in the planning process, and conducted as part of activities occurring on the left hand side of the planning triangle. Utilize CRMP to identify and understand existing and desired conditions, to determine opportunities, and to identify possible management practices for consideration. A CRMP could be used to develop a proposed action. Handbooks describing the CRMP process and its potential uses are available from the Society for Range Management and the State of California. These handbooks can also be obtained at most Supervisor's Offices or the Regional Office.

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[22] Federal Advisory Communication Act of 1972; 5 U.S.C. 86 Stat. 770; USDA Dept. Reg. 1041-1, 111389

Document all CRMP projects in an Interagency Agreement or Memorandum of Understanding (MOU) so that goals, objectives, and procedures are clear. The CRMP group must be aware of how their work will be used by the decision-maker.

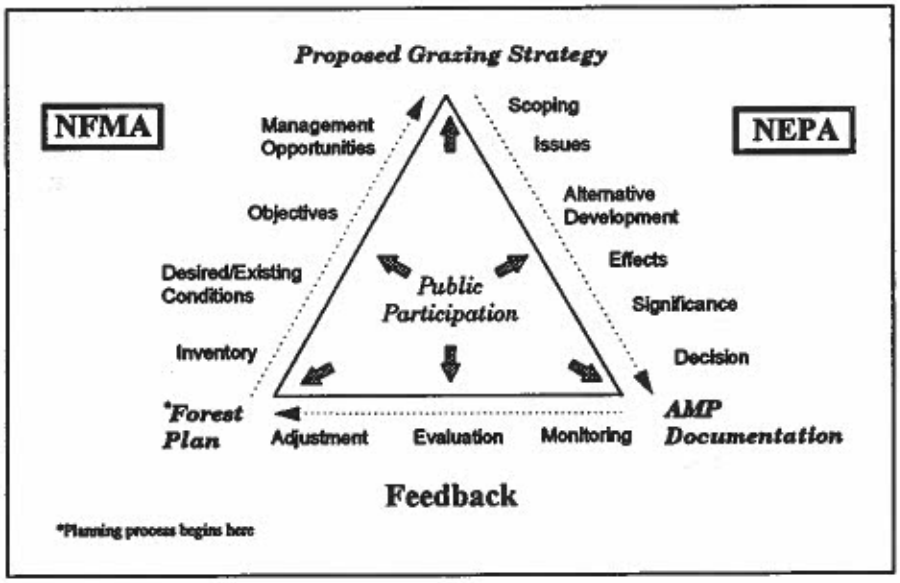
The Pacific Southwest Region has formal Coordinated Resource Management MOUs with the state of California. The regional MOU is general in nature and is not a substitute for a project level MOU.

RANGELAND PLANNING PROCESS

The rangeland planning process outlined below describes project level planning and decisions. This process includes the site specific analysis necessary to comply with legislation and to implement management strategies to achieve the intent of programmatic direction in Forest Plans. This process can best be described in three steps (Figure 2-2):

1. Compliance with the National Forest Management Act (NFMA).
2. Compliance with the National Environmental Policy Act (NEPA).
3. Preparation of an Allotment Management Plan (AMP).

Figure 2-2. RANGELAND PLANNING PROCESS



STEP 1: NFMA COMPLIANCE

Compliance with the National Forest Management Act consists of developing potential site specific management practices that will implement the broad direction of Forest Plans. The end result is a proposed action that adds clear, specific ingredients to the intent of Forest Plans and provides the planning team with a comprehensive strategy upon which to conduct an environmental analysis and documentation. This step includes, but is not limited to, the following tasks. Each is described below in more detail.

- Identify the planning area.
- Determine desired and existing conditions.
- Identify management opportunities.
- Identify management practices.
- Formulate a Proposed Action.

IDENTIFY THE PLANNING AREA

Rangeland planning should identify livestock management activities that complement and encourage progress towards the desired condition(s) of an entire landscape. It is important that planning not be a mechanical process, but rather be flexible and fit the local situation, i.e. adaptive management.

Considering the issues and local situation, there may be several scales for planning. Two distinct scales are readily apparent: allotment planning and landscape planning. These are obvious planning scales, however, numerous other combinations might be used to address specific situations. It is essential that the Line Officer determine the scope of the planning effort and prepare a project work plan that obligates both funding and specialists' time to complete the job.

ALLOTMENT PLANNING

In this case, as in the past, allotment boundaries describe the confines of the planning area. The area might include one or more allotments. At a minimum, planning for the allotment must recognize the biological complexity of the entire watershed. Rangeland inventory and analysis emphasizes obtaining the information necessary to design allotment management strategies consistent with the Forest Plan.

The level of input and participation by other resource specialists must be sufficient to develop a livestock management strategy aimed at achieving the objectives for desired rangeland conditions. Inventory and analysis at this scale might not contain the necessary information and specialist involvement to support other project proposals.

LANDSCAPE PLANNING

There is an increasing need to inventory and conduct assessments of land areas using integrated teams of resource specialists. Areas to be assessed may be based upon watersheds or other logical landscapes. The area is

not necessarily tied to allotment boundaries but can cover several allotments in whole or in part. Analysis includes all ecosystems, including forested, rangeland, and riparian types. Landscape scale inventory and analysis are an intensive approach to collecting the necessary information from which multiple resource project proposals can be developed.

Considering resources and issues relevant to the landscape, a team of resource specialists works jointly to analyze potential and existing resource conditions, and to propose projects to help achieve the desired conditions. Project proposals might include wildlife habitat manipulation, timber management practices, watershed rehabilitation, recreation improvements, allotment management, and others. The overall intent of this type of planning is to take a true integrated approach to managing National Forest System resources. Landscape scale planning is becoming the rule, not the exception.

Determine Desired and Existing Conditions

Forest Plans reveal broad direction for resource management. Review the Forest Plan to identify management emphasis areas on the allotment (management prescriptions) and the associated standards and guidelines. Management prescriptions describe the resources that should be emphasized on certain locations within the area. Forest Plans are not intended to provide all the necessary information for rangeland project decisions. The rangeland planning process will refine the broad desired condition(s) described in the Forest Plan.

The desired condition is a visualization of how the forest and its resources would look if all the goals, objectives and standards and guidelines in the Forest Plan were implmented. We will refine the desired condition stated in the LRMP through the landscape and allotment planning process. The Pacific Southwest Region publication *Sustaining Ecosystems, A Conceptual Framework* (Manley, et al. 1995) describes a process of developing a desired condition for a landscape or allotment. The landscape evaluation process is part of the "left-hand side" or "NFMA" analysis illustrated in Figure 2-2. We cannot measure every aspect of an ecosystem to evaluate the difference between the existing and desired conditions. Instead we will select a series of key **"ecosystem elements"** which may be processes, components or structures, that are identified as being critical to maintaining the integrity of the ecosystem. Each ecosystem element will have one to several **"environmental indicators"** which we can then use to evaluate conditions on the landscape. For example, a key ecosystem element may be Riparian/Aquatic Vegetation. Environmental indicators may be canopy closure, amount of shading, or acreage and seral state of vegetative communities. Environmental indicators are quantitative and measurable and allow us to monitor changes that occur in ecosystem elements. The result of this process is a series of measurable objectives that should be assessed together to determine what projects should be initiated to move the landscape toward the desired condition. Developing quantitative statements from the initial desired condition is a critical step.

Our intent is clearer communication with the ID team members and the public. It also immediately sets up the basis for effective project monitoring.

Developing a desired condition for an allotment where a landscape analysis has not been completed should follow the same basic approach: identify the overall desired condition from direction in the LRMP, and refine that direction, where necessary, by stating more site-specific, quantifiable objectives that clearly make a contribution to the achievement of the desired condition stated in the LRMP.

It may take considerable time and ID Team discussion to move from the broad desired condition statements in the LRMP to more quantifiable objectives. Effort expended in this planning step will make the rest of the process go more quickly. Data will be available for all subsequent projects proposed for the landscape, and as mentioned above, communication with the public will be clearer and subsequent monitoring will be focused on collecting useful information.

MANAGEMENT OPPORTUNITIES

The next step is to identify opportunities and develop specific management practices, that will then become the basis for your proposed action. An opportunity can be viewed as the distance between the existing and the desired condition.

Example:

LRMP direction: Provide for development of mature willow vegetation along 30% of Forest streams during the planning period:

Landscape analysis:

 # Acres Riparian Vegetation Dominated by Willow

Existing Condition	50
Desired Condition	200 within 10 years

Opportunity: Increase willow dominated riparian acreage in the landscape by 150 acres within 10 years.

This simple restatement can then be the basis for generating any number of possible management practices.

Possible management practices:

- plant willows
- fence all creeks
- fence Dry Creek
- rest the allotment for 3 years
- change to an early season grazing strategy
- reduce stocking level
- relocate the picnic area away from Dry Creek

Any one or a combination of these management practices will help you achieve the desired condition. Based on the site-specific situation, these and possibly other practices can then be combined into one or more **proposed actions** for NEPA analysis that have a clear and direct linkage back to the LRMP. Note that a timeframe was included in the desired condition statement. The rate at which changes need to occur should be evaluated based on the rationale for the change. For example, if the reason willow vegetation is an issue is that the landscape being analyzed provides the only known habitat for a willow-dependent wildlife species, implementing several measures most likely to increase willow habitat quickly would be called for. The last practice "relocate the picnic area away from Dry Creek" would not ordinarily be included in a proposal solely intended to manage grazing. However, it could be considered for this particular project, or become part of another project within the landscape to help achieve the stated desired condition. One of the values of landscape analysis is just this; it allows for a more holistic look at the ecosystem and helps to identify the kinds of projects and in what order they should take place to most effectively achieve the stated desired condition.

FORMULATE A PROPOSED ACTION

In the ideal situation, a landscape-scale inventory and analysis (page 2-10) will provide a foundation of information that can be used for multiple resource proposals and projects. These proposals, implemented either together or individually, will accomplish the desired condition objectives that were agreed upon for the area.

At this stage in the process, land managers should decide upon the scope of the proposed action within the National Environmental Policy Act context. The proposed action is generally made up solely of livestock management practices. In other situations the livestock management may be combined with other management practices designed to improve wildlife habitat, enhance recreation or achieve other resource objectives.

While several management practices may be combined into a single proposed action for NEPA analysis, be aware that the larger the range of these practices, the more complex the subsequent NEPA analysis will be. The line officer is responsible for deciding what practice or combination of practices will be taken forward together in the NEPA analysis.

Some common range management practices that would normally be included in the proposed action, where applicable, are:

1. Livestock management practices, such as:
    - permitted grazing use, timing and duration of use, and kind and class of livestock
    - livestock management requirements, such as trailing, herding, riding, supplemental feeding, and salting
    - structural and nonstructural improvements including type, location and general specifications
    - allowable use or residual plant cover standards

2. A proposed implementation schedule for proposed activities.
3. Monitoring requirements to determine if management direction has been implemented and if it is effective in moving toward or meeting the desired conditions identified by the interdisciplinary team.
4. Information from broader scale analyses such as landscape assessments, conservation strategies, ESA recovery plans, and ESA Section 7 documents.
5. Mitigation measures designed to avoid, minimize, rectify reduce, eliminate, or compensate for adverse impacts of the proposed activity.

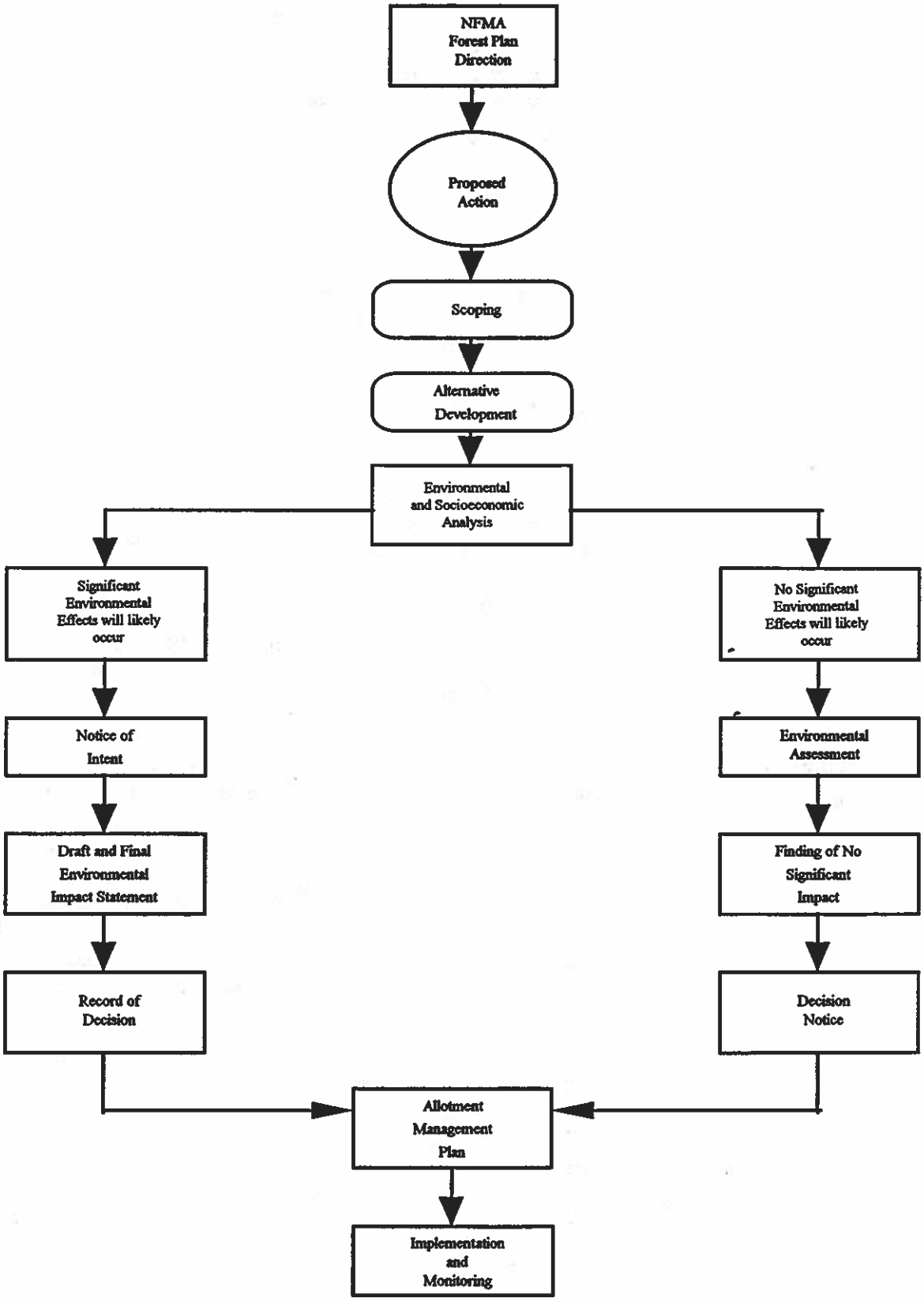
The purpose and need for the proposed action should include a discussion of the desired condition derived from the direction in the LRMP Direction includes goals, objectives and Standards & Guidelines. Identification of the proposed action will initiate the National Environmental Policy Act compliance.

STEP 2: NEPA COMPLIANCE

Compliance with NEPA requires an environmental analysis and documentation (Figure 2-3) of the analysis in an Environmental Assessment (EA) or Environmental Impact Statement (EIS). The analysis is an investigation of the proposed action and alternatives to accomplishing that action; and their direct, indirect, and cumulative environmental impacts. The analysis provides necessary information for reaching an informed decision, and also determines the type of documentation required. The NEPA process includes:

- Descriptions of the proposed action, purpose and need for that action, and the decision to be made.
- Scoping and issue identification.
- Alternative development.
- Environmental and economic effects.
- Findings of significance.
- Documentation in EA or EIS.

FIGURE 2-3. NEPA DOCUMENTATION



NEPA requires that a formal interdisciplinary team (IDT) be established. This team may involve some or all of the planning team members included in NFMA compliance. The disciplines and skills of this group must be appropriate to the scope of the action and the issues identified. The number of persons on the team should be manageable. Other resource specialists can serve as support for a core IDT.

Forest Service directives[23] and Council of Environmental Quality (CEQ) regulations[24] provide detailed information on compliance with NEPA. All range managers and line officers with planning responsibilities should be familiar with these documents.

Proposed Action: Purpose and Need

This phase of the NEPA process simply consists of documenting details of the proposed action and why the action is needed. Specific details of the proposed action should be thoroughly explained so that misconceptions and unfounded conclusions are kept to a minimum. The proposed action purpose and need are the foundation for the entire NEPA analysis.

Scoping and Issue Identification

This phase of NEPA compliance consists of outreach to the public for issues of concern. Many issues will have already surfaced through involvement of interested persons in the development of the Forest LRMP. The intent of NEPA scoping is to identify all significant issues related to the proposed action. Issues identified through scoping will often result in modification or addition to the proposed action.

Letters, media contacts, public meetings, open houses, and other forms of notification may be required, depending upon the complexity and controversy of the planning effort.

Alternative Development

Alternative development is crucial to a good planning process. Clearly stating the purpose and need and issues allows the IDT to focus on development of good alternatives. All alternatives must promote progress towards achieving the purpose and need. With the possible exception of the required no-action alternative, alternatives that do not move resources towards the purpose and need are not reasonable. A great deal of thought and creativity is required to develop a range of alternatives that are acceptable in terms of accomplishing the purpose and need. Formulating good alternatives allows for a true comparison of environmental and economical effects between the alternatives.

CEQ regulations for implementing NEPA require a no-action alternative be developed as benchmark from which the agency can evaluate the proposed action. No-action in rangeland planning is interpreted as no livestock grazing. Consequently, environmental and economic effects of the various alternatives including the proposed action are compared with those effects projected from no grazing. In addition, an existing management (or status quo) alternative should be analyzed as a benchmark to

[23] FSH 1909.15

[24] 40 CFR Parts 1500-1508

display anticipated changes from the current situation. It is possible to end up with only two alternatives, no action and status quo, if the proposed action is the same as status quo.

Alternatives should be well thought out and defined. They must contain sufficient detail to allow for determining effects and a clear basis for choice among options. Mitigation measures should also be explained. Consider reasonable alternatives that include management of lands outside Forest Service jurisdiction where appropriate.

Environmental and Socioeconomic Effects

This provides the analytical basis for comparison of alternatives. The analysis should estimate direct, indirect, and cumulative environmental effects from implementing each alternative. Evaluating the effects of livestock grazing on every biotic and abiotic component of the ecosystem is virtually impossible. The effects must address, however, those resources that were accepted as key or significant issues, or those resource effects analyses mandated by law, regulation, and policy. Estimate the effectiveness of mitigation measures for each alternative. The IDT plays a major role in insuring that effects are properly disclosed.

The analysis should also disclose social and economic effects. This analysis should make an effort to also estimate economic effect on the permittee. See reference section for an example.

In addition to cost effectiveness analysis there are several other legal and policy requirements to be addressed in the effects analysis. A biological evaluation (BE) or biological assessment (BA)[25] must be prepared to determine effects on federally listed threatened, endangered, and Regional Forester designated sensitive (TES) species. Effects of each alternative upon cultural resources must also be evaluated according to Section 106 of the National Historic Preservation Act.[26] Effects of the alternatives on water quality must be addressed as mandated in the Clean Water Act.[27] Preparation of a Noxious Weed Risk Assessment is required for all ground disturbing activities,[28] and ensures that the potential for spreading noxious weeds is considered in rangeland planning.

Estimating effects is really the essence of NEPA compliance. The public demands and deserves accurate information on the effects of proposed rangeland management. Rangeland managers, through the interdisciplinary process, should ensure all effects are accurate and fully disclosed.

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[25] FSM 2672.43

[26] P.L. 89-665

[27] P.L. 80-845

[28] FSM 2080; see Appendix B

FINDINGS OF SIGNIFICANCE

Environmental analysis determines the significance of effects on the human environment. The significance of effects determines which environmental document to prepare (Figure 2-3). If no significant effects are likely to occur, then an EA is prepared. If significant effects will likely occur, then an EIS must be prepared. Most rangeland planning efforts will require an EA, a Finding of No Significant Impact (FONSI), and a Decision Notice that documents the action to be implemented.

DOCUMENTATION

Preparation of environmental documents is explained in detail in Forest Service directives[29] and in the CEQ regulations.[30] Figure 2-3 illustrates the NFMA/NEPA process requirements leading to documentation of the decision. The decision document that will accompany the EA or EIS describes more thoroughly the management action(s) to be implemented on the ground.

STEP 3: AMP PREPARATION

The authority for allotment management plans (AMP) lies within FLPMA and 36 CFR 222.1 and 222.2. The AMP is the implementation plan for the actions analyzed in the NEPA process and selected in the decision document. The AMP specifies the actions needed to manage rangeland resources for livestock grazing, and must integrate resource goals and objectives for all resources with livestock grazing.

The AMP is the permit implementation document by which the Forest Service communicates to the permittee and others: management objectives, planned actions to accomplish those objectives, and monitoring necessary to determine if progress towards objectives is being made. A good AMP is brief and to the point.

The AMP should be a separate document from the NEPA document. It is recognized that most if not all information for the AMP is stated in the NEPA document, and to do a separate document for the AMP is a duplication of effort. However, for the sake of clarity and ease of reading, it is felt that a separate document serves the permittee best.

ELEMENTS OF THE AMP

Each allotment management plan must contain sections on objectives, management actions, improvements, and monitoring and evaluation.[31] Other sections may be added depending on the scope and complexity of allotment management. The suggested AMP outline follows.

COVER PAGE

A separate (approval) cover page will be used for the allotment management plan. It includes the allotment, Ranger District, and National Forest names, and has preparer, permittee, recommended, and approval signa-

[29] FSH 1909.15

[30] 40 CFR Parts 1500-1508

[31] FSM 2212.2

tures on it. The AMP implements the NEPA decision and is not a new decision, nor is it appealable. If the permittee refuses to sign, then state the reasons and proceed with the decision implementation.

PERMIT STATEMENT

A statement is needed which says: "This Allotment Management Plan is made part of your (Term/Temporary/Private Land) Grazing Permit in accordance with Section .... of that permit, approved on ..... ." This statement can be written on the cover page with the signatures.

GOALS AND OBJECTIVES

This section must contain objectives for management of rangeland resources and livestock grazing. *The objectives are the same objectives as described in the purpose and need of the NEPA document.* These objectives describe the desired condition for rangeland vegetation and other rangeland resources.

This section also contains a brief summary from the EA or EIS on the present allotment condition and situation, to put the pathway from the present situation to the desired condition into perspective.

Objectives must be clear and specific statements of planned results to be achieved within a stated period of time. The results indicated in the statement of objectives are those which are designed to achieve the desired state. Objectives must be sufficiently specific, concise, quantifiable, and measurable to allow for monitoring; must relate to desired conditions; and must contain a projected date for planned achievement (page 2-14). Objectives in the allotment management plan are basically a refinement of objectives developed during NEPA compliance.

MANAGEMENT ACTIONS

Document the number of permitted livestock, kind and class of livestock, season of grazing use, and grazing system to be used. The grazing system or formula must be described in words and graphic or tabular form so it is clear to all parties.

A tabular listing of range improvements, both existing and proposed, the condition of existing improvements, and a listing of maintenance responsibility is required. Include schedules for:

- rehabilitation of ranges in unsatisfactory condition, including noxious weed infestations, and
- initiating range improvements with responsibilities for costs and labor incurred and planned completion dates.

Describe the contribution each grazing treatment makes toward meeting the objectives, and how conflicts and issues will be resolved. Management actions needed to meet objectives for other resources and uses should be stated. Management and coordination needs for threatened, endangered, and sensitive species should be addressed. Incorporate applicable standards, guidelines, and management requirements from the Forest Plan.

STANDARD AND GUIDELINES

Standards and Guidelines shall be put in writing for each unit or special management situation on the allotment. Specify maximum use guidelines for key areas within the allotment, and maximum acceptable disturbance levels for stream banks and vegetation components in riparian areas. The standard and guidelines shall also specify maximum acceptable ground cover disturbance, if appropriate, to protect the soil resource.

Standards and guidelines for utilization level, or residue left after grazing, need to be established for each key area. The standard and guidelines established need to identify key specie(s) and consider plant physiological requirements. When establishing residue standards, consideration needs to be given to factors such as plant form, i.e. a short growing plant such as tufted hairgrass may have adequate plant growth reserves with a 2-inch stubble height, whereas Idaho fescue may require 4-6 inch stubble height for adequate growth reserves. Slope may also be a key consideration, whereby a key area located on a 40% sideslope would require a higher residue level than a key area in a similar vegetation type located on a slope of under 10%. The desired condition may include a need to provide forage or cover for wildlife species that necessitates a higher residue or stubble height levels than is needed for minimal plant physiological requirements.

MONITORING AND EVALUATION

Outline monitoring actions needed to determine compliance with objectives. From an administration perspective, evaluation and monitoring procedures should be planned within the available resources. It may be helpful to prioritize monitoring activities or specify minimum monitoring requirements. Monitoring and evaluation should address:

- Actual livestock use, season, and numbers.
- Ecological status and condition of capable rangeland (acres meeting or not meeting Forest Plan and AMP standards).
- Trend of benchmark community types and other capable rangelands toward desired condition (for example, satisfactory livestock forage resource value rating).
- Streambank alteration and stability, and vegetation trend in riparian areas.

- Compare utilization maps with the management objectives for firming up capacities. Include time frame for mapping to coincide with completion of grazing system and what will be done if use intensity does not met objectives, such as changes in stocking or management systems.
- Increase or decline of inventoried noxious weed infestations.
- Compliance with other management requirements of the Forest Plan, AMP, and annual operating instructions.

Members of the IDT and where practicable, permittees and interested publics should help decide what specific monitoring information will be needed in order to determine if the goals and objectives of the management plan are being met. Long-term soil and monitoring techniques should be employed to evaluate and document short term dynamic occurrences. Reference the Monitoring Chapter for a complete discussion of monitoring and evaluation.

Annual Operating Instructions

Include annual operating instructions that the appropriate Forest Officer shall review each year and, in consultation, coordination, and cooperation with the permittee, revise as necessary. These instructions, in straight-forward language, define and describe what is expected and required by the permittee for the current year.

Grazing System Design

Management system design is an extremely important part of the AMP for any allotment. A successful grazing system must:

- Move or maintain resources towards the desired condition.
- Provide watershed protection.
- Provide sustained production for livestock and wildlife.
- Be flexible to allow for unpredictable seasonal precipitation and forage production.
- Provide forage reserves for drought periods.
- Maintain or enhance habitat for wildlife and fishery resources.
- Be integrated as closely as possible with overall ranch plan objectives.
- Be simple, workable, and easily understood and followed.
- Be compatible with or enhance other resources and uses.
- Be tailored to the inherent characteristics of the soil, vegetation, and topography.
- Be cost-effective in terms of construction, maintenance of necessary range improvements and management, and administration time.

- Include consideration of combining allotments to provide rest-rotation.

Grazing Systems on Cattle Allotments

Grazing systems on cattle allotments shall generally provide for an appropriate amount of residue after grazing. Season-long grazing should be phased out, and some form of rest or deferment should be emphasized. Rest-rotation, deferred rotation, high intensity-short duration, and several other grazing systems are acceptable. Grazing during periods of rapid growth is most harmful. Riparian areas should be a prime consideration in designing a grazing system. Grazing systems in riparian areas should emphasize short-duration use. No system is ideal for all situations, so the grazing pattern must be tailored to the individual allotment. Systems must be flexible so that changes can be made as needs arise.

Almost all grazing systems on cattle allotments require good water distribution. Allotment management planning should address the needs for additional water sources. Permittee salting and riding practices play a key role in the success of any management system. Salt should be placed well away from water sources (at least 1/4 mile) and used as a means to distribute cattle throughout the unit. All grazing systems require that the permittee spend considerable time on the allotment, moving cattle out of concentration areas and sensitive riparian areas.

Perhaps the most important aspect of planning any grazing system is gaining the full support and commitment from the permittee. The rancher must be willing and able to administer the system, and the system must be realistic. A variety of grazing systems can be successful if the permittee is fully committed to the objectives and provides the necessary effort to make the system work.

Grazing Systems on Sheep Allotments

Much of the material presented in this guide is oriented toward cattle management. Generally, the conceptual approach and the procedures apply equally well to sheep management but some differences should be recognized. The following information describes some of the features of sheep management and handling that must be kept in mind during management planning for sheep allotments.

Sheep Grazing Habits

Good sheep husbandry is not normally compatible with heavy use. Sheep should be allowed to seek their own level of forage utilization. They prefer different plants at different times of the year and this should be considered in designing the management prescription. Once-over grazing is highly desirable, even under rest-rotation type of management.

Sheep are finicky feeders in the morning and choose only tidbits of the choicest plant. They settle down and feed better in the evening, and are not nearly as selective in their choice of forage. The less the herder handles the herd, the better the animals thrive. However, in order to system-

atically graze an allotment, checks and controls must be applied by the herder.

Sheep prefer fresh feed each day. However, elapsed time will allow the feed to freshen up, particularly after a rain. Open herding results in less travel. If use is forced, the herder must tighten the spread of the herd resulting in trampling damage to the range and adverse effects on the sheep. Trampling damage is probably the single greatest problem with sheep grazing if left unmanaged.

SHEEP MOVEMENT AND HERDING

Moderate topography is best for ease of handling. Thick brush acts as a barrier to grazing sheep even though there are trails through the brush. Heavy stands of sagebrush are also barriers to a grazing herd. On most summer allotments, sheep will graze upslope after leaving their afternoon watering and bedding site. They will then regroup and bed down for the night on a ridge top or some other high vantage point. They instinctively use these high points for protection and vantage. Sheep do not like to night bed in thick trees or in the bottom of basins, or depressions. From the high point, they will usually begin grazing at daybreak.

It is very important the herder be with the flock to influence the direction when they begin to graze. The sheep will otherwise often graze the same direction as they did the previous day, watering at the same site and bedding down on the same bed ground. This results in poor lambs and excessive trampling along the persistent routes of travel. When sheep leave the shade-up area during warm weather, they tend to graze on the shady side of the canyon and avoid open slopes. Sheep will usually not graze downhill in the evening.

It is difficult to force sheep to shift from succulent forage, such as shifting from forbs to mature grass. Feed is generally more succulent on cooler north and east aspects. During warm weather, sheep make good use of aspen and similar range. They prefer to graze in the shade of the trees in the afternoons after leaving the shade-up area.

During cool or stormy weather, sheep have a tendency to travel. During warm summer days, sheep shade-up from mid morning to late afternoon. Under these conditions, sheep begin grazing at daylight and again from late afternoon until dark.

Water distribution and location are important to sheep. The ideal situation is to have water available in the bottom of every canyon. It is sometimes a management advantage to pipe water from hillsides to developments in the canyon bottom. It is difficult to force sheep to use the slopes below available water on hillsides. Watering sites should be close enough so excess trailing is unnecessary. Sheep should not be required to go more than a mile to water. Doubling the distance sheep travel to water increases the grazing use adjacent to the water source several times.

It is difficult to get sheep off steep slopes once they are established there. The herd will delay going to water until they are very thirsty. They will

then trail (often on a run) off the slope with resulting damage to the range and slopes.

Overgrazing and Undergrazing Portions of the Range

Both the herder and the sheep follow the path of least resistance. The most accessible and easily herded portions of the range will be grazed most heavily. Areas adjacent to water, especially if water is scarce, receive heavy grazing pressure. If shade-up areas are limited, the available shady areas will receive heavy use during warm weather. Shading up too often in one place is as damaging as repetitive use of bed grounds.

Sheep also prefer the upper half of slopes and ridge tops. These areas, particularly ridge tops, should be closely watched and evaluated. On the other hand, some portions of the range tend to be under utilized. Small isolated corners, slopes cut up or isolated by rocks or brush, the lower portions of long slopes, slopes below available water, steep, rough country, and some of the timbered areas fit into this category.

Additional Considerations

Other factors to consider when designing grazing management by sheep:

1. Where possible, avoid placing allotment boundary lines (common to two allotments) on ridge tops. Sheep naturally prefer to graze the upper portions of slopes and ridge tops. When allotment lines are placed on ridge tops, the result is double use of these areas. Sheep from both sides of the ridge graze and may bed on the ridge top. Some problems can be alleviated or corrected by placing common boundaries on drainage bottoms.

   Many boundaries are more or less fixed and are difficult to change. Where this situation occurs, alleviate problems with special instructions to the permittee and the herder. These instructions normally should be placed in the annual operating instructions. The instructions may prohibit bedding the sheep on certain ridge tops and/or specify that these areas receive only light use.

2. Sometimes small non capable areas occur within large areas of capable range. These areas may have shallow soil with little vegetation. They are sometimes delineated on maps furnished to the herder and owner and shown as "closed to grazing." This creates an impossible situation for the herder due to the impracticality of keeping sheep off many of these small areas. When this situation exists, the range manager must choose to either:

   - change the grazing formula either to protect these areas or to enable them to be grazed in a manner that they would not be damaged, or
   - close a large enough area around the non capable sites so it is possible for the herder to keep the sheep off them.

3. When possible, sheep should be managed on the basis of "once-over" grazing under rest-rotation or deferred rotation management. Cattle are placed in a pasture or grazing unit and confined there until the desired degree of use is obtained; this approach is undesirable with sheep.

Permittees usually want their sheep with lambs on fresh feed every day to put weight on their lambs. If sheep are confined to a grazing unit until heavy utilization is attained, lambs will not do well and the permittee will be opposed to the grazing management system. Similarly, if sheep are confined to a grazing unit, soil damage from trailing and trampling by sheep is usually unacceptable.

MANAGING SPECIES COMPOSITION OF ANNUAL GRASSLAND RANGELANDS

GRAZING SYSTEMS ON ANNUAL GRASSLAND RANGELANDS

Changes in species composition can result from differences in the amount of herbaceous residue present at the time of germination in the fall. Residual dry matter (RDM) can be managed to meet resource objectives. Only the most common plant species are listed.

1. Low amounts of RDM in the fall tend to result in an early successional stage, consisting of the following representative species:

Aira caryophyllea	silver hairgrass
Briza minor	little quakinggrass
Erodium botrys	broadleaf filaree
Eremocarpus setigerus	turkey-mullein
Gastridium ventricosum	nitgrass
Medicago polymorpha	bur-clover
Trifolium spp.	clover

2. High amounts of RDM in the fall tend to result in a late successional stage, consisting of these representative plant species:

Avena barbata	slender wild oat
Avena fatua	wild oat
Bromus diandrus	ripgut
Bromus mollis	soft chess
Taeniatherum asperum	medusa-head

3. It is preferable to have a spatial mix of early and late successional stages in an allotment. The desirability of one group of species over another depends upon management objectives. The RDM of some species can only be controlled by early seasonal use because they are ignored when mature.