Biological Services Program

FWS/OBS-77/04
MARCH 1977

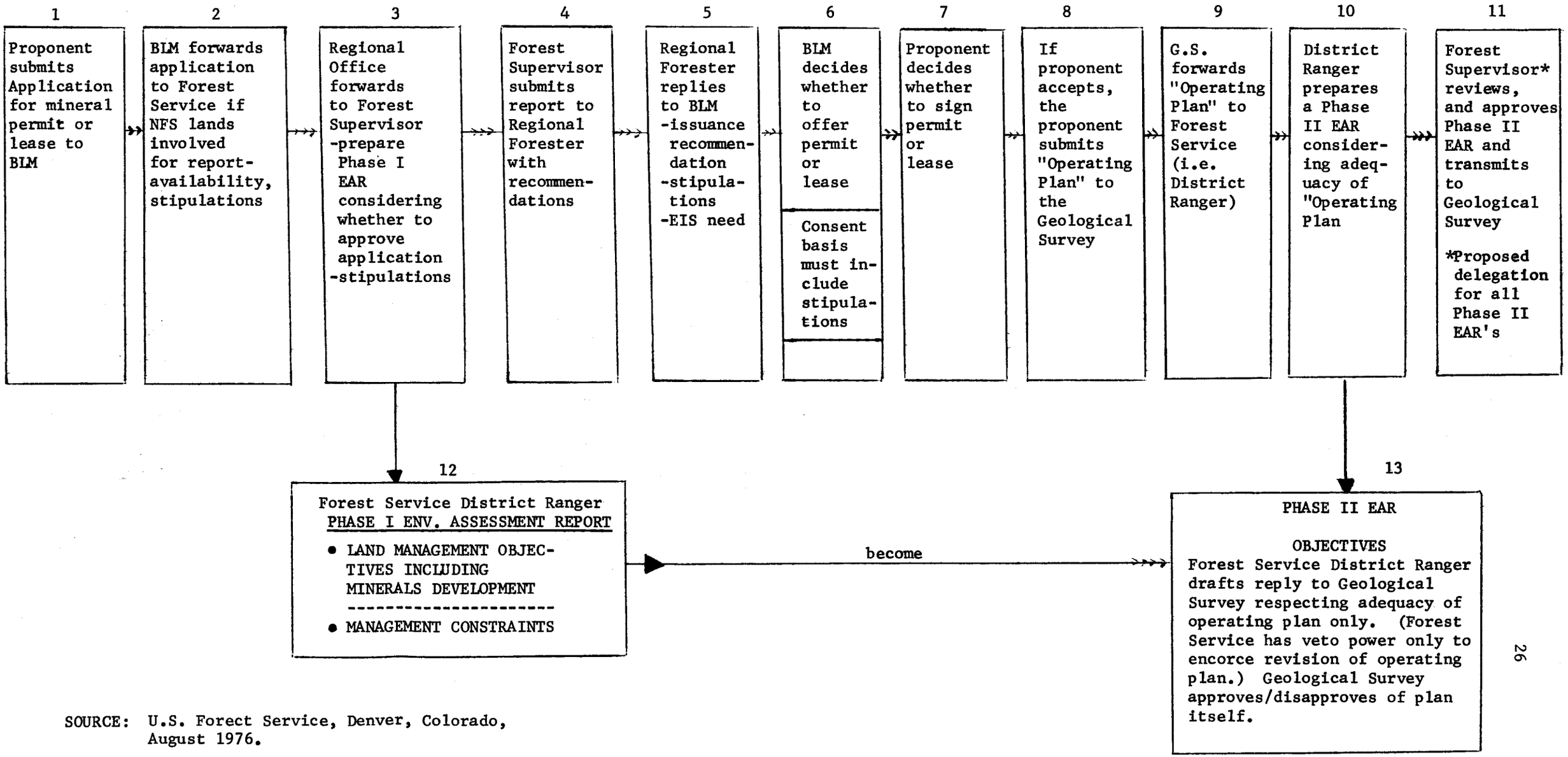
ENERGY, PUBLIC CHOICES AND ENVIRONMENTAL DATA NEEDS

Fish and Wildlife Service

U.S. Department of the Interior

Figure 6

FOREST SERVICE PERT CHART FOR LEASABLE MINERAL ACTIONS



SOURCE: U.S. Forect Service, Denver, Colorado, August 1976.

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ENERGY, PUBLIC CHOICES AND ENVIRONMENTAL DATA NEEDS

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Contract No. 14-16-0008-2103

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Performed for

Western Energy and Land Use Team
Office of Biological Services
Fish and Wildlife Service
U.S. DEPARTMENT OF THE INTERIOR

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402

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Library of Congress Catalog Card Number: 77-81609

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ACKNOWLEDGEMENTS

The authors would like to thank Dr. Allan Hirsch, Chief, Office of Biological Services, U.S. Fish and Wildlife Service, and his colleagues Terry McGowan, Harvey Doerksen, Herbert Quinn, Robert Stewart and Robert Streeter for their technically proficient and generously provided information and insights. They would also like to thank Robert A. Jones of the Bureau of Land Management and Thomas Friz of the Geological Survey for their assistance. Many other individuals in the headquarters, regional and field offices of Federal, State and local agencies, Councils of Government, advocacy groups, and the legal field were likewise most helpful, and this is gratefully acknowledged.

ENERGY, PUBLIC CHOICES, AND ENVIRONMENTAL DATA NEEDS

I. INTRODUCTION

A. PURPOSE

The objectives of this study[1] have been:

1. To identify the Federal and State planning and decision-making processes relevant to energy developments that would require fish and wildlife information, in coal and oil-shale Federally-owned areas (but excluding Native American Indian areas) of six selected Western States;[2]

2. To identify the points within major decision-making processes at which the important choices affecting the development of energy resources on five selected "ecological test areas" in the above States are made;

3. To identify the types and sources of information presently being used at each decision point; and

4. To identify all of the decision points within each process in which the Fish and Wildlife Service of the U.S. Department of the Interior could provide information, based on process-related traditions, legislation, regulations, and procedures, and the most appropriate timing, format and content of such information.

B. ENERGY DEVELOPMENT IN PERSPECTIVE

This project arises from the fact that rapid expansion of Western energy development is impinging on fish and wildlife resources. The sponsor, the Fish and Wildlife Service (FWS), has statutory responsibility and

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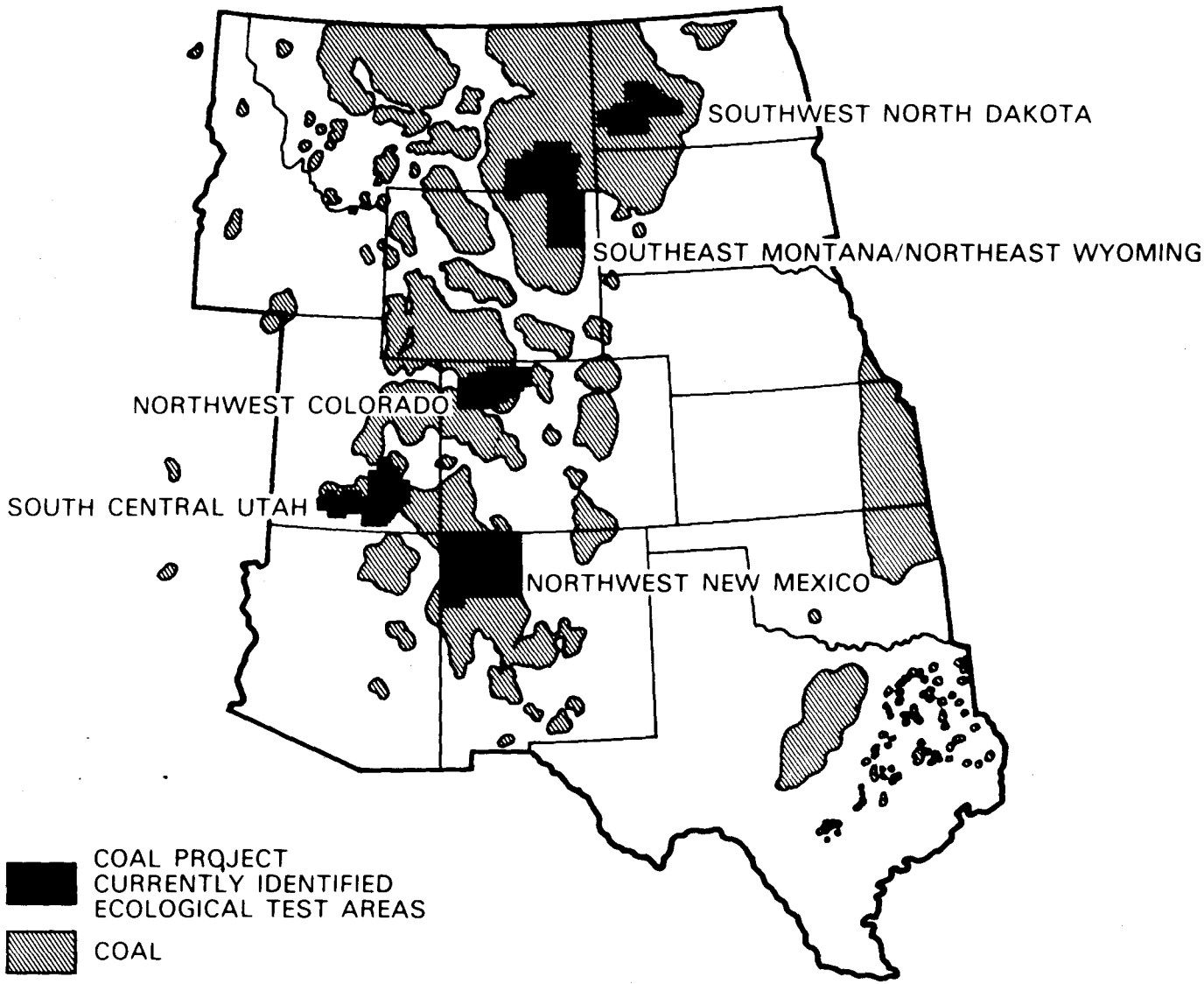
[1] Contract 14-16-0008-2103, "Project 29, Identification of Crucial Decision Processes That Affect the Development of Western Energy Resources," of the Coal Project, Western Energy and Land Use Team (WELUT), Fort Collins, Colorado, a unit of the Office of Biological Services, Fish and Wildlife Service. Comments in this final report are those of the contractor, Institute of Public Administration, and its subcontractor, National Wildlife Federation, and not those of the sponsor.

[2] See Figure 1 map.

Figure 1

Coal Project - Ecological Test Areas



authority to protect, regulate and otherwise deal with these resources. The intent of the project has been to strengthen the ability of FWS to anticipate energy developments and to be able to provide information respecting fish and wildlife values to the appropriate decision makers.

Several factors explain the great expansion of Western coal and oil shale development in recent years. These include (1) the continued upward secular trend in U.S. domestic demand for energy; (2) the erosion recently of the rate of finding new domestic sources of oil and gas;[1] (3) the 1973 oil export boycott imposed by the cartel of oil exporting nations; (4) the increase in the price of energy; (5) the need to reduce the imbalance of foreign payments incurred in purchasing expensive foreign oil; (6) the lower sulfur content of Western coals; and (7) the more economical and safe recovery, through surface mining, of Western minerals (transportation to markets is more expensive, of course, and Western coal does not have so high a heat content as midcontinent and Appalachian coals).

C. ACTORS

There are three main groups of actors or decision makers in Western energy development. These include (1) public agencies at the Federal, State and local level; (2) private entrepreneurs, mainly corporations; and (3) advocacy groups, mainly of the environmentalist persuasion. The public agencies have certain legal responsibilities such as issuance of leases for the mining of coal or oil shale; the private entrepreneurs are the ones who actually dig and market the minerals; and the advocacy groups attempt by various means including review and comment on environmental impact statements, participation in public hearings, and occasionally litigation, to influence the development processes.

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[1] National Journal, vol. 8, no. 39 (September 25, 1976), page 1366.

1. Public Agencies

The principal Federal agency involved in the energy development decision process is the Bureau of Land Management (BLM), which is the main surface-management agency of the U.S. Department of the Interior (DOI). BLM is responsible for the issuance of leases to entrepreneurs for the extraction of Federally-owned mineral, including that under Forest Service lands.

Although mineral deposits underlie National Forests, the surface-managing agency, the Forest Service (FS), in the U.S. Department of Agriculture (USDA)--plays only a peripheral role in energy development decisions, because the leasing decisions are vested in BLM.

The U.S. Geological Survey (GS), also in DOI, receives, reviews and approves, modifies or rejects proposed mining plans from entrepreneurs. These plans must provide for the economic recovery of the mineral, protection and rehabilitation of the surface, and mitigation of environmental damage. BLM imposes stipulations in its leases, and GS issues approvals for mining plans often subject to various conditions that may deal with economical recovery and also water problems, subsidence, and similar events. The relationship between GS and a mining company may last for decades, until a mine is abandoned.

The U.S. Water Resources Council (WRC) coordinates Federal-State water resource planning in each of the main river basins. In the semi-arid and arid West, water diversion and consumption have important consequences for fish and wildlife values. The Bureau of Reclamation (BuRec) of DOI and the U.S. Army Corps of Engineers (CE) play important roles in the actual design and construction of impoundments, diversions and channel straightenings.

The Energy Research and Development Administration (ERDA) is the sponsor of large-scale experimental and demonstration activities such as coal gasification plants. An individual demonstration plant may have locally large impact and if duplicated through commercialization of the process this could be proliferated elsewhere.

The Environmental Protection Agency (EPA) issues regulations to control air, water, solid waste and noise pollution, and enforces these. Toxic materials including pesticides, rodenticides and other substances are also controlled. These all have relationship to fish and wildlife values.

The Council on Environmental Quality (CEQ) supervises the environmental impact statement (EIS) process required of Federal agencies and others where a Federal action--funding, approval, granting permission (as in a lease), etc.--is involved. In large mining operations EIS's are filed.

At the State level, Departments of Natural Resources or their equivalents are responsible for environmental issues, reclamation, mapping, and like activities. Divisions of game and wildlife, which relate mainly to constituencies of sports fishermen and hunters, are concerned with protecting the supply of sports fish and game, with some attention to related elements.

Other State units such as Departments of Public Health deal with pollution control, often with regulations equal to or tighter than Federal EPA requirements. Land use planning and control, as through zoning, are accomplished at the local (usually county) level, relating to State agencies such as Departments of Planning.

Review processes such as the Federal Office of Management and Budget Circular A-95 coordinative process, are cared for at the State and local level by Departments of Planning units and local Councils of Government (COG's) which include county officers.

2. Mining Entrepreneurs

Major firms including oil companies (energy companies) are very active in developing leases on Federal land for the extraction of coal in the West. Oil shale activity--limited mainly to Western Colorado and Eastern Utah--has been carried out by similar firms.

3. Advocacy Groups

Public interest advocacy groups include the Sierra Club, Wildlife Management Institute, and Environmental Defense Fund. These organizations vary widely as to viewpoint and procedures, some being much more preservationist than others.

D. APPROACH

This project was carried out in several steps. In the first phase, the crucial planning and decision processes affecting Western coal and oil shale development on non-indian Federal land were identified and sorted into a sequence of decreasing importance by systematically applying a set of evaluative criteria.

In the second phase, which is concluded with this report, the more important planning and decision processes were further researched by more extensive field interviewing, and gaps discovered in the first phase of work were filled. More detailed diagrams of the processes were developed, as was information as to timing, format, placement (addressee), content and

accuracy requirements of fish and wildlife values needed as data by planners and decision makers. In addition, much thought was given to methods by which FWS might most effectively and efficiently supply information to its sister agencies and the other actors.

1. First Phase Criteria

The criteria for the selection of the most important decision processes were as follows:

1. Does the decision process have a suitably large effect;
2. Does it possess sufficient leverage;
3. Is it politically acceptable for the Fish and Wildlife Service to deal with the decision process;
4. Is the process one that will allow FWS to provide data or technical comments at a reasonable cost in time, expertise and research; and
5. Will the decision process, if affected by FWS, induce the desired response over a broad range of situations?

These evaluative criteria were applied by assigning scores from 1 to 10, with 10 being the maximum score, all criteria being of equal weight. The results were then ranked in descending order of total score, as shown in Table 1.

Most of the processes were found to be agency-specific, e.g., the lease issuance process carried out by BLM. Other processes, such as water allocation, were found to be distributed among several agencies. Table 1 shows the results of the first phase evaluation that was applied to the decision processes that had been identified at that time. Most of these processes were found to be agency-specific, e.g., the lease issuance process carried out by BLM. Other processes, however, such as water allocation, were found to repose among several agencies.

Table.--APPLICATION OF CRITERIA TO SELECTED CRUCIAL DECISION PROCESSES[a]

DECISION PROCESS[b]	CRIT. ONE (1)	CRIT. TWO (2)	CRIT. THREE (3)	CRIT. FOUR (4)	CRIT. FIVE (5)	TOTAL
BLM	10[c]	10	10[d]	10	7	47
USGS	10[e]	7	10	10	7	44
STATE/LOCAL LAND USE CONTROL[f]	8	8	8	10	7	41
FS	8	8	10	10	7	43
STATE WATER ALLOCATION	6	6	7	10	7	36
FWS ENDANGERED SPECIES ACT	9	7[g]	10	5	5	36
STATE FISH AND GAME AGENCY PLANNING	7[h]	5	10	10	5	37
FEDERAL AND STATE WATER PLANNING	5	5	10	8	5	33
EMISSIONS REGULATION	4	4	10	7	5	30
EISs	8	8	10	10	6[i]	42[j]
PUBLIC INTEREST GROUPS	7	7	6	6	6	32[j]

a - For criteria, see list above at page 6.
b - For processes, see list in Table 1 above at page 9.
c - 10 is maximum score; all criteria are of equal weight.
d - BLM accepts data, but not interpretation of data.
e - USGS stipulations process is critical element.
f - Mining reclamation plan is critical element.
g - FWS may find use of statute delicate problem.
h - State data are critical element.
i - Programmatic EIS has wider effect than project EIS.
j - EIS and Public Interest Group items are not strictly decision processes.

Also during the first phase, an extensive collection of planning documents, maps, environmental impact statements and legal materials, including statutes, regulations, interagency agreements, etc., was assembled. A bibliography of these materials that was included in the first phase report appears as Appendix I herewith.

2. Second Phase Interviews

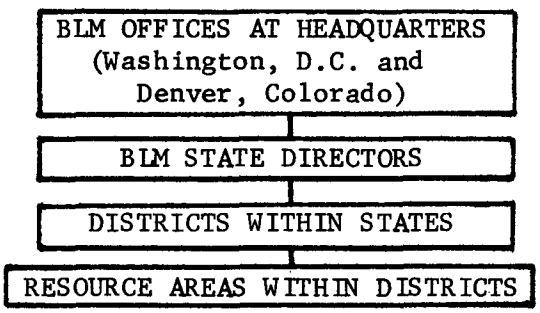
In the second phase, the wide field interviewing sought to identify just which offices of which agencies (and, to some extent, advocacy groups) were the most strategic in the Western energy planning and decision process, and what their fish and wildlife information requirements were. The interviews were carried out in Montana (covering also Federal responsibility in North Dakota, which was not visited), Wyoming, Colorado, New Mexico and Utah.

II. OVERVIEWS OF AGENCY DECISION PROCESSES

A. FEDERAL AGENCIES

1. Bureau of Land Management

a. Description: Bureau and Decision Processes. The Bureau of Land Management carries responsibility delegated from the Secretary of the Interior for land use decisions as to Federal land.[1] This responsibility is exercised through a decentralized organization, as shown below; the extensive BLM Manual provides standard procedures:



The BLM decision process relating to coal leasing has been radically revised over the last three years, modifying the practices in use prior to 1970.[2] Previously, coal leases were issued in large numbers in response to competitive lease applications and prospecting permits ripening to preference right lease applications. Before 1970, BLM reacted to lease applications on a case-by-case basis and issued leases without a detailed environmental analysis.

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[1]Land use planning is authorized as a basis for decision making and required therefor by §202 of the Federal Land Policy and Management Act of 1976.

[2]Description is based on U.S. Department of the Interior, Bureau of Land Management, Final Environmental Impact Statement. Proposed Coal Leasing Program. Washington, D.C.: U.S. Government Printing Office, [September 1975], Chapter 3. Public Law 94-377 (August 4, 1976) updates the EIS/EMARS process (see next page of this report for description of EMARS); see Federal Coal Leasing Act of 1975, amending 30 USC 181 (Mineral Leasing Act of 1920, as amended).

BLM, acting for the Secretary of the Interior, has developed its ENERGY MINERALS ACTIVITY RECOMMENDATION SYSTEM (EMARS) as a systematic planning procedure by which to determine where coal leases should be issued. The idea is to become anticipatory rather than to continue being purely reactive to the demands of private entrepreneurs.

EMARS fits within the general land use planning scheme of BLM, which deals with timber, range, watershed, recreation and fish and wildlife, as well as minerals. The leasing procedure developed for EMARS is competitive only; there will be no noncompetitive leasing with the exception of those preference right lease applications now pending.

EMARS utilizes data not only from BLM but from other Federal, State and local government agencies, contractors and advocacy groups, as well as from private mining interests. BLM officials at the resource area and district level collect, examine and evaluate data on:

1. Baseline information (minerals, timber, range watershed, wildlife, etc.);
2. Surface and minerals estate (subsurface) ownership;
3. Socio-economic impacts of coal development;
4. Federal State and local government services needed;
5. Compliance requirements for air, water and toxic materials pollution control;
6. Mined land reclamation potential;
7. National, regional and local demand for the proposed Federal coal; and
8. Nominations (indications of interest) of lands for leasing and development; expressions of "public concern" for areas not to be leased or developed.

The intent of EMARS is to lease Federal coal competitively in response to bona fide market demand, while avoiding severe environmental impact.

Under the EMARS process, BLM accepted nominations for coal leases (and for areas opposed to coal leases, i.e., areas of public concern) from 1st June through 31st July, 1976. Some 680 coal lease nominations were submitted. Large scale (1,500,000) maps have been prepared depicting the areas nominated pro and con.

These nominated areas will be examined for conflict and environmental impact owing to mining, access roads, supporting areas, new towns, etc. Some 538 existing coal leases may depress the actual exploitation of any new leases, however, because the latter are subject to much more expensive royalty requirements.[1] To some degree, these are offset by more relaxed due diligence requirements.[2] Environmental protection stipulations incorporated in the leases themselves are more stringent in the theory equal in both old and new leases. To some degree also, consolidations of old leases with certain new ones may take place to facilitate assembly of logical mining units,[3] but new lease nominations are serving mainly as estimators of demand for Federal coal.

EMARS has not yet completed its first full cycle, so experience by which to evaluate its success is still quite thin. Figure 2 shows, however, how EMARS is intended to work, operating through the regular BLM planning and decision process. The BLM planning and budgeting process lays

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[1] Old surface mine royalty, about 5% of coal price at tipple; underground mine royalty, one to two percentage points less. New surface mine royalty, 12.5% of coal price at tipple required by statute; underground, to be determined by Secretary of Interior, probably about 8%.

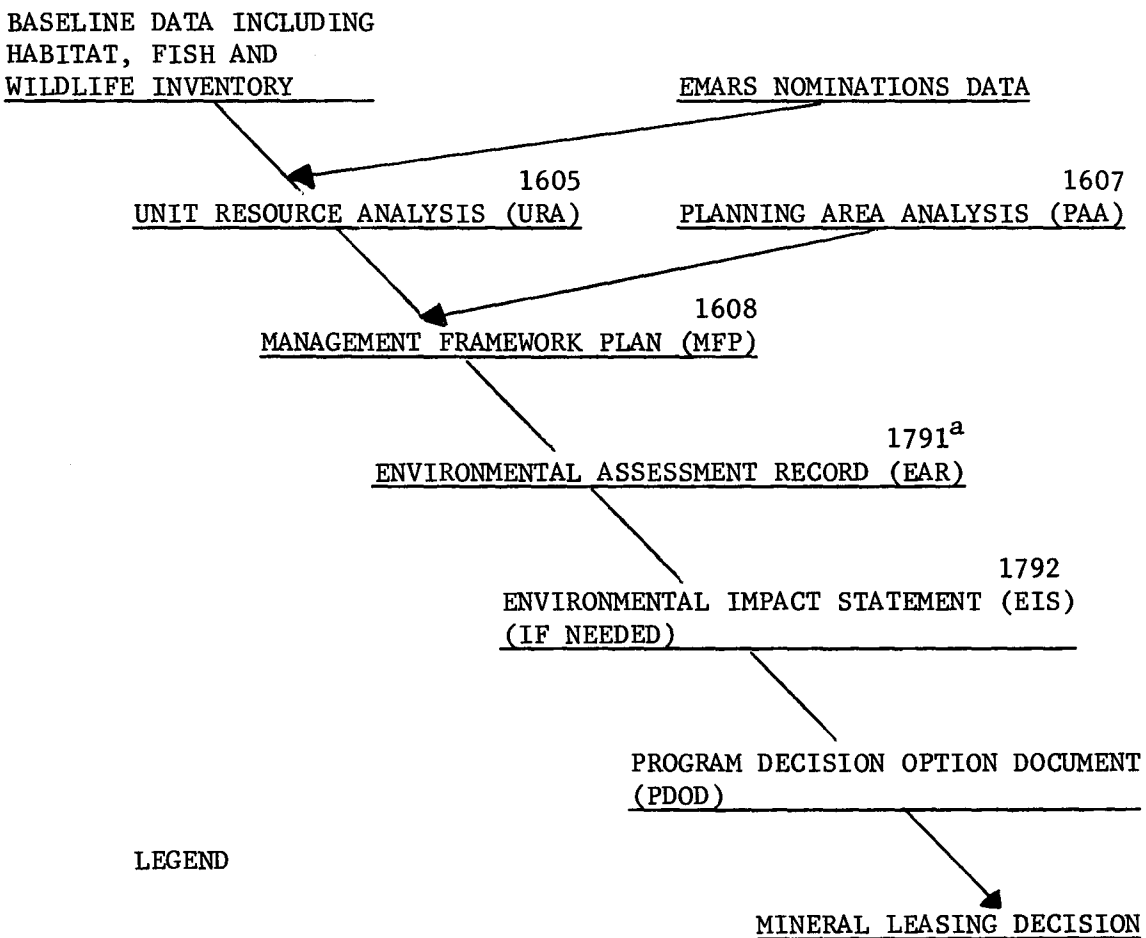
[2] Old due diligence requirement, 2.5% extraction by end of 10th year; new requirement, only 1% by that time, but 40-year total extraction required.

[3] 42 Federal Register 2706 (January 13, 1977) proposes rule with exchanges of old and new leases for coal, phosphate, and other minerals.

Figure 2.

SIMPLIFIED MAIN STEPS OF BUREAU OF LAND MANAGEMENT

MINERAL LEASING DECISION PROCESS



LEGEND

EMARS - BLM Energy Minerals Activity Recommendation System;
1605 - Section of BLM Manual;
URA - Resource inventory interpretation;
PAA - Interpretation of socio-economic-institutional and human environmental values;
MFP - Land use plan;
PDOD - Secretary of the Interior procedure.

Note: Unit Resource Areas and Planning Areas mentioned in Figure 2 are within BLM resource areas and districts listed in middle of page 9, above. Units add to planning areas which are congruent with or add to resource areas.

a - This step is omitted if a decision is made in advance to prepare the EIS.

SOURCE: BLM Division of Environmental and Planning Coordination.

out what BLM wants to accomplish each fiscal year, thus triggering the first steps in EMARS. The year's activity in BLM may or may not be fully congruent with the intentions of private entrepreneurs. EMARS seems to resolve the conflict moderately well through the nominations process, but more than a partial first cycle is needed to allow EMARS performance to be fairly evaluated.

Figure 3 is a more elaborate restatement of the BLM planning and decision process, and like Figure 2 produces mineral leasing decisions as the final output.

Figure 4 shows the estimated time of the BLM land use planning process under three conditions (new start, major revision, and recycle). The Figure in Appendix II shows the "major revision panel" of Figure 4 as shaded segments, which are embedded within the larger over-all framework of the entire land use planning process.

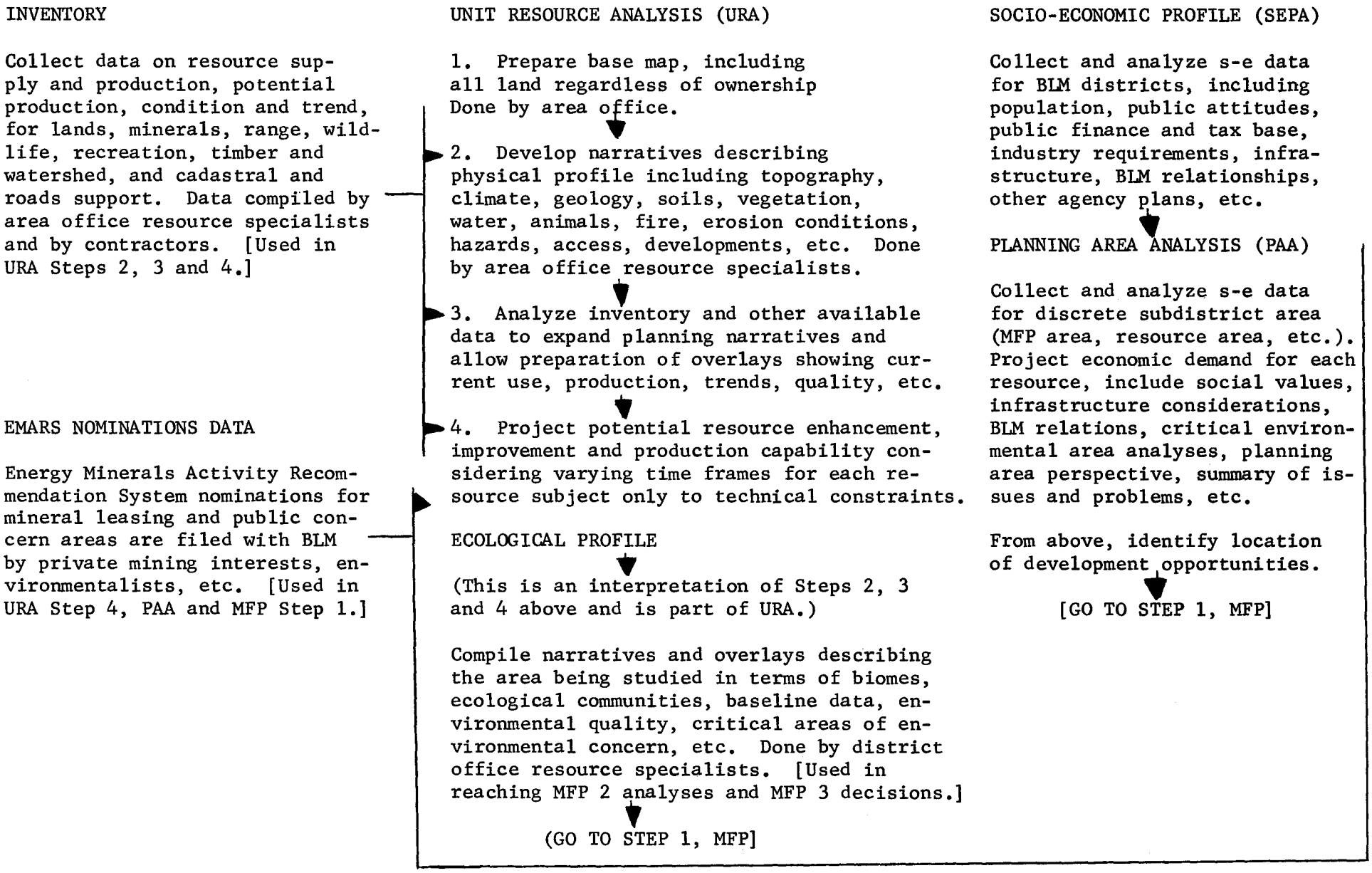
Figure 4 shows the process under maximum compression; similar charts could be prepared for BLM planning for timber, range, etc. The planning process is triggered by the BLM annual work plan or program budget; this allocates resources to selected finite activities. There is a lead time of 90 days or more between final approval of the annual budget and the start of the planning processes to be funded by that budget.

Seven regional EIS's are being prepared for coal leasing and mining activities on Federal mineral estate, in accordance with Appendix II; BLM leads 4 of these, and the Geological Survey the other 3.

Figure 4 shows ten calendar months for the "new start" land use planning situation, but this requires a large concentration of resources; the usual elapsed time is expected to be about 18 months. Figure 4 assumes that necessary baseline data have previously been assembled.

Figure 3.

EXPANDED MAIN STEPS OF BLM MINERAL LEASING DECISION PROCESS



SOURCE: Figure 2, and U.S. Department of the Interior, "BLM in Wyoming, 1976", pps. 8-9, revised by Division of Environmental and Planning Coordination.

MANAGEMENT FRAMEWORK PLAN (MFP)

1. Develop tentative resource production objectives related to planning area analysis demand projections, as constrained by socio-economic-political factors, with rationale, outputs, benefits, etc., all specified. Include support needed to achieve objectives such as cadastral survey, access, etc.

2. Analyze socio-economic, institutional and environmental impacts of resource values. Reconcile and coordinate competing recommendations.

3. Further analyze step (2) data to reach and record planning decisions for each resource program. Cumulative environmental impacts are summarized as are benefits, outputs, etc. Resource overlays for management decisions are prepared and decisions are published.

[GO TO EAR]

ENVIRONMENTAL ASSESSMENT RECORD (EAR)

(This step is omitted in cases where an advance decision has been made to prepare an EIS.)

Assess environmental impact of specific proposed action to carry out approved MFP; develop data from which a decision to prepare an EIS can be made.

ENVIRONMENTAL IMPACT STATEMENT (EIS)

(Decision to prepare is reserved to the BLM Director.)

ANALYZE ANY PROPOSED ACTION (BLM's or other) that would have a significant impact on Federal lands, using baseline and additional field URA and s-e data. Done by BLM Resource Area, District or State Director taskforces.

PROGRAM DECISION ACTION DOCUMENT (PDOD)

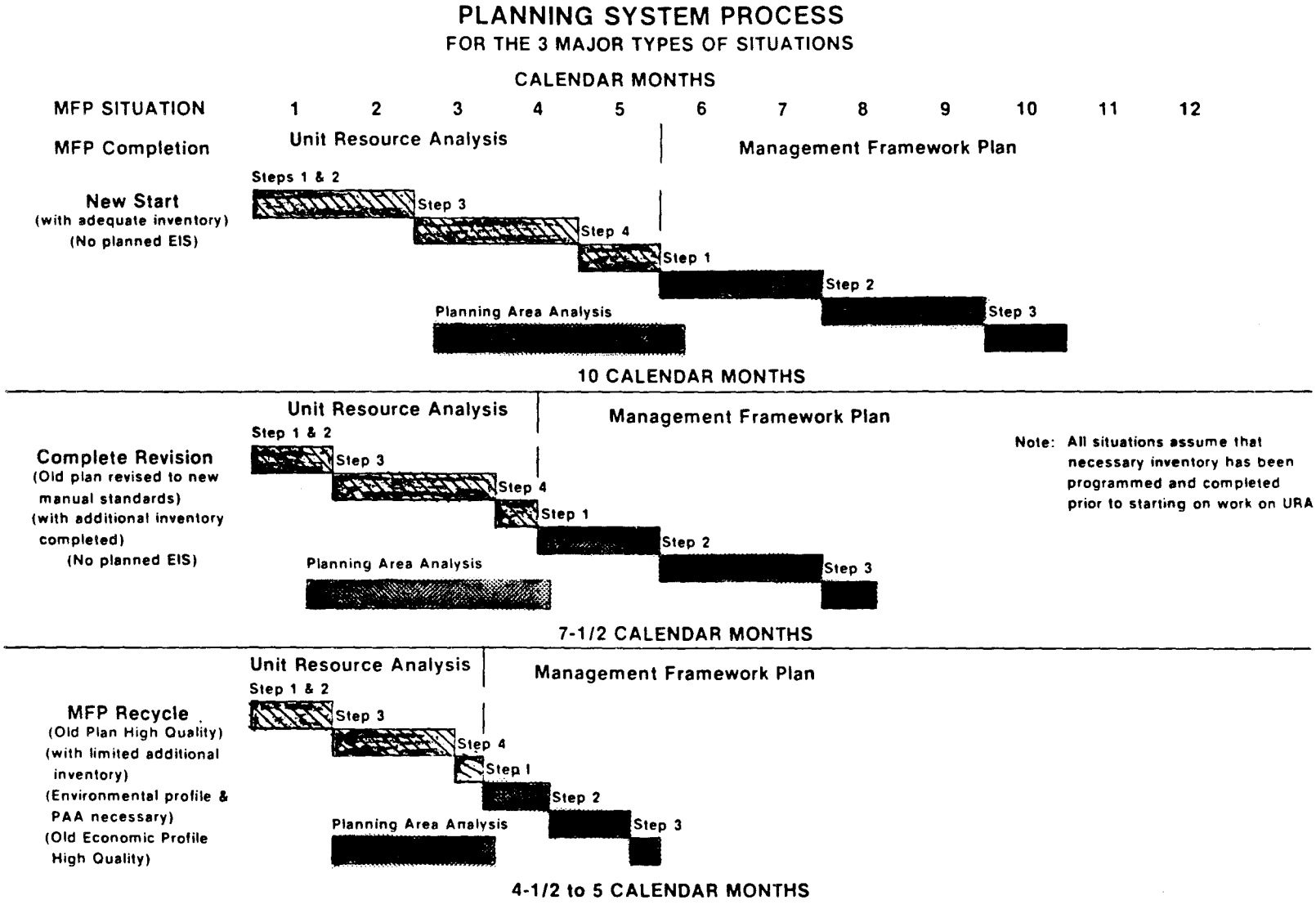
If conditions warrant, submit material to Secretary, U.S. Department of the Interior, for decision, laying out options to plan (PDOD).

MINERAL LEASING DECISION

If previous steps, appeals, etc., are properly matured, make mineral leasing decision. Include stipulations in lease insofar as necessary to desirable.

[LESSEE FILES MINING PLAN WITH GEOLOGICAL SURVEY WITHIN 3 YEARS OF LEASE DATA.]

Figure 4.



SOURCE: BLM Division of Legislation and Plans

b. Issues. There are several sources of complexity affecting the need for fish and wildlife values in BLM coal and oil shale lease issuance. Among these complications are (1) the widely-dispersed BLM professional staff; (2) the urgently growing demand for Western energy, 80 per cent of which is to be found on Federal lands; (3) the requirements for thorough study and evaluation of environmental considerations; and (4) the difficulty of defining, collecting, verifying, and making available to planners and decision makers the requisite scientific data, interpreted as to their significance, respecting minerals, mineral economics, and ecology. Environmental aspects include (1) alternative sites, mining plans and reclamation plans; and (2) mitigation actions to reduce adverse impacts.

The lease nominations process is designed to make the intentions of the private mining interests known earlier rather than later and thus to facilitate BLM planning and to assist it in being congruent to the thrust of the private interests. The PAA process is intended to do the same with the other agencies, such as the Forest Service, Fish and Wildlife Service and the Bureau of Reclamation. Fluctuations of the marketplace for BLM outputs, most notably timber, range (meat) and sports fishing and game complicates each agency and corporate decision process.

BLM is mainly a multiple-use agency that must respond to a variety of potential users and interests. The Fish and Wildlife Service, therefore, and any similar supplier of data to the BLM analyses, must understand that BLM has a sophisticated planning process and decision making process that must be dealt with on their own terms. Further, BLM is very busy, and has strong internal line organization to help get the job done.

c. Recommendations. Extensive interviewing of BLM professional staff confirmed that BLM would welcome timely, accurate, well-presented information as to fish and wildlife values, technically and objectively interpreted as to their significance and relationship to prospective energy or other development. BLM must retain responsibility for its own planning and decision making, of course, and therefore is not receptive to other agencies assuming an advocacy role in place of the advocacy which is the responsibility of BLM specialists; but these specialists are grateful for data and analyses which can help them fill their advocacy role. There is provision in the BLM process for abundant public and interagency participation, pursuant to various statutes and directives and to BLM management philosophy, so the Fish and Wildlife Service, advocacy groups and others may adequately review and comment on BLM documents and may also argue their case at the Assistant Secretary level, or higher. There are sufficient pathways that BLM should be given the freedom and allowed the integrity of doing its own planning, and drawing up its own list of recommended mineral development actions for exploitation by the private sector applicants, after giving full consideration to important values.

Actual data needs are of four main types: (1) wildlife populations, particularly economically important ones, and populations of threatened and endangered species of both animals and plants; (2) location of the wildlife; (3) sites of nesting pairs of economically important wildlife and of sensitive, threatened and endangered species and their habitat range; (4) habitat requirements for sensitive, threatened and endangered species or economically important species; (5) sites or locations of special limiting factors such as winter range, migration routes, strutting or booming areas, etc. For fish, minimum stream flow requirements are among the key data needed.

Ideally, the data would be collected and verified for each of the four annual seasons, and for a period of several years. Usually this is impossible, owing to time constraints and the need to make decisions, and FWS must be willing to compromise on data quality or reliability by short-cut observation schedules. Often, of course, archival information can be used and reasonably well validated by abbreviated field observations.

Appendix III presents an extensive set of forms developed by the Colorado Division of Wildlife, and these may have some merit in setting forth not only combinations of ecological variables but convenient ways of arraying these variables. None of the forms in this appendix were presented for comment to BLM or any other agency, but they may be valuable in themselves as a benchmark starting point for detailed format inquiries.

Information is also needed as to alternative site possibilities for mining and for reclamation outcomes. Mitigation of possible adverse environmental effects need to be considered as well. As legal documents, BLM leases can and regularly do contain stipulations that are site-specific, and which require that certain things be done or not done, or done in a particular way, or season of the year, in order to mitigate adverse impacts or avoid them altogether. FWS, in working with BLM under the EMARS process can review proposed leases and the stipulations which form a part thereof, and FWS may propose additional stipulations or changes to achieve mitigation.

2. Geological Survey (GS)

a. Description: Bureau and Decision Processes. The Geological Survey becomes the principal representative of the Secretary of the Interior after an operator signs a mineral lease with BLM. Before actual operations at the site may begin, the company must file mining plans with GS and get them approved. The plans detail the proposed mining itself, disposal of spoil or tailings, land reclamation procedures, existing and prior land uses, and final mine abandonment activity, and other provisions of the regulations. GS supervises each of these aspects and may be involved for a period of 40 years or more with any given mine.

Mining plans are intended to assure economic recovery of the mineral resource while avoiding with the best available technology and procedures adverse environmental impacts to the extent possible. The GS mining plan approval process may be depicted as follows:

1. Mining operator files proposed extraction, mitigation, reclamation and abandonment mining plan with GS.

2. GS consults FWS and States for data as to possible species or habitat endangerment; GS consults with States as to post-mining land use plan.

3. Environmental assessment is made, to determine whether an EIS should be prepared.

4. GS Director or Interior Secretary decides about EIS.

5. GS-Mining Operator surface mining agreement incorporating conditions of approval is prepared and signed.

GS imposes conditions for approval that may vary from zero to 15 or 20 items in a given leasehold mining plan. These items are site specific even though their fish and wildlife orientation may be of an indirect nature. For example, the conditions of approval go to matters such as subsidence and water quality and quantity, which may by indirection affect surface habitat, minimum streamflows for aquatic biota, etc.

b. Issues. A key issue may be the lack of well-considered alternative wildlife habitats to which land can be reclaimed. The possible choices for habitat could include certain agricultural cropland, windbreaks and fish ponds, forested areas, etc. Some of these choices offer considerably more diversity of resulting habitat than the currently required policy of restoration to original contours which is now mandated (though with variances allowed). From the fish and wildlife point of view, an objective such as diversity of species habitat could be set forth as the preferred policy. The Federal regulations[1] could then be amended to meet this objective; for example, by allowing fish ponds or lakes in the final mining cut. Indeed, a good deal more thought must be devoted to post-mining land use planning not only at the Federal but also at the State and local level, in order for mineral lease agreements and mining plans to contribute more significantly to wildlife resource development.

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[1] 41 Federal Register 20252, Bureau of Land Management; Geological Survey; "Coal Mining Operating Regulations", amending Title 43, Chapter II, Part 3040, and Title 30, Chapter II, Part 211, United States Code.

The existing regulations (and also the proposed Federal Surface Mining and Reclamation bill now under consideration in the Congress) are in large part a key to this problem. They should be revised to allow wildlife habitat development at suitable sites using steep hollows and ravines, rather than requiring reclamation to approximate original contours in all cases.

The Fish and Wildlife Service should plan to participate in post mining land use planning at the preleasing stage or at the mining plan approval stage at the latest when GS invites comment under Section 211. Further to this, it would probably be helpful to develop interagency memoranda of understanding[1] which formally include FWS reviewal for contours, vegetation, water supply or impoundment. For this, criteria are needed as to the BLM-GS-FWS relationship.

It should be mentioned that reclamation standards of at least one State, Wyoming, equal or exceed Federal standards and may now take precedence over the Federal standards (Section 211). An agreement on this was reached between the Secretary of the Interior and the Governor of Wyoming in 1976, providing for Wyoming to perform inspection and enforcement to the Wyoming standards.[2]

c. Recommendations. It is recommended that BLM-GS-FWS sort out the existing interagency agreements and Secretary's Orders, and develop a comprehensive approach to the notification, data specification, data exchange, review and comment and approvals steps associated with mining plans.

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[1]Comparable to Secretary's Order 2948, "Division of Responsibility Between the Bureau of Land Management and the Geological Survey for Administration of the Mineral Leasing Laws--Onshore", October 6, 1972.

[2]New York Times, December 4, 1976, page 15.

3. U.S. Forest Service (FS)

a. Description: Bureau and Decision Process. The Forest Service is a highly-decentralized agency, many of the operating decisions of which are made in the field. In this it and the BLM resemble each other.

FS, which is in the U.S. Department of Agriculture, supervises the surface renewable resources of National Forest lands. The major elements produced are timber (forest products), watershed, range, recreation, fish and wildlife and (recently added) community values. The FS planning process is governed largely by acts of Congress,[1] more so than is probably true for either BLM or GS.

Figure 5 at the next page presents the main concept of FS planning as it may now be described, though it is somewhat in flux. The process is hierarchical, with detailed field information interacting with nationally and regionally set goals and standards. All forest land--Federal, State and private--is taken into account by FS analyses. Figure 6 presents further details.

The subsurface minerals are identified by FS as occasion merits, but leases for extraction of those minerals are issued only to firms or individuals in the private sector, and these leases are all administered by BLM just as they are on National Resource lands. Likewise, GS supervises the economic extraction of the mineral as on Federal land elsewhere.

These arrangements mean that fish and wildlife values must be provided to these agencies as early as possible in the planning-decision making process. Even if an agency, like GS, is not going to act immediately on a proposed mine because the lease itself has not yet been issued, the information must be in the system for it to be taken into account at as many stages as possible, even for consciousness-raising of decision makers.

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[1]Multiple Use Sustained Yield Act, MUSY, 1960; Renewable Resources Planning Act, RPA, 1974; and National Forest Management Act, 1976, which amends RPA.

Figure 5

FOREST SERVICE PLANNING RELATIONSHIPS

TO IMPLEMENT MULTIPLE USE CONCEPTS IN FORESTS

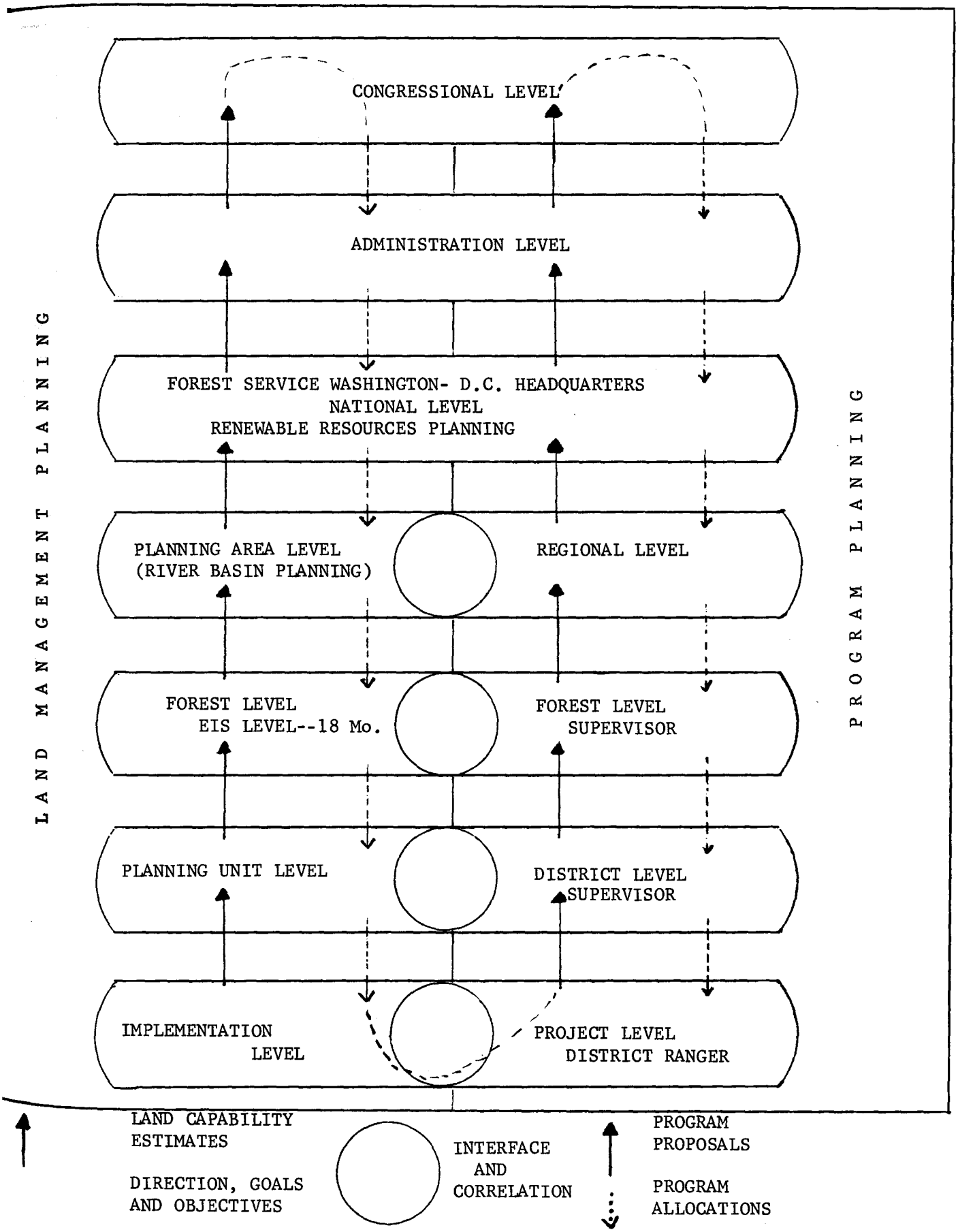
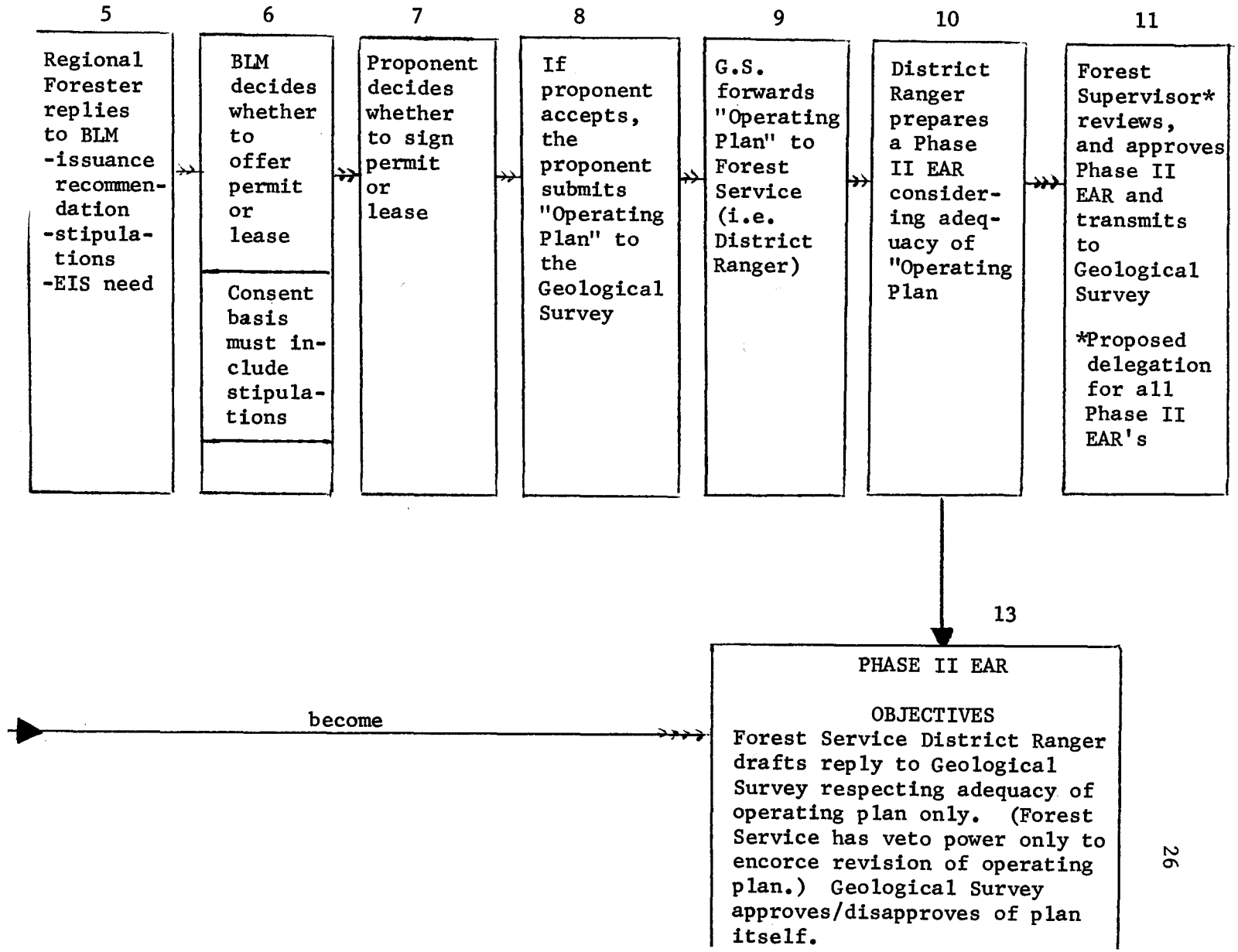


Figure 6

PERT CHART FOR LEASABLE MINERAL ACTIONS



A Federal law dating from the 1930's has long since induced some cooperation between FWS and the Forest Service, among other agencies;[1] but FWS research or other activity on National Forest lands has been virtually nonexistent even so. FWS has not developed a program of data collection as to species and habitats on either FWS or BLM lands, and thus unfortunately does not now possess a strong scientific position respecting rare or endangered species or other features of those lands.

The FS participation in mining decisions in National Forests is purely advisory and consultative; the actual disposition of minerals and the control of the way in which extraction and follow-up steps occur are lodged with BLM and GS.[2]

b. Issues. As a highly decentralized agency, FS offers a wide-ranging target for FWS interaction. There will tend to be a too thin spreading of FWS resources unless a priority-setting system is devised.

The time allowable for FWS to deal with FS matters is also a limiting factor, because FS itself is limited. The review time the Forest Service may spend is regulated by orders from the Secretary, which in turn are issued pursuant to law.[3] The time period is 30 days for mining operating plans, e.g., while EIS reviews may vary from 45 to 90 days.

The real burden on FWS, however, is to specify just what fish and wildlife values are needed and in what offices of BLM, GS or FS. Once specified, the data then must be developed and delivered in a suitable format to these offices, and this should be done as soon as possible in the planning and decision process.

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[1] Fish and Wildlife Coordination Act, 1934.

[2] U.S. Department of Agriculture, Forest Service, "Mining in National Forests. Regulations to Protect Surface Resources", Current Information Report No. 14 (CI/14), January 1975.

[3] 1872 Mining Act.

c. Recommendations. It is recommended that BLM, FS and FWS jointly work out under a Secretary's Order a memorandum of understanding that goes to the above matters. There is abundant precedent (note particularly the BLM-FWS draft memorandum that at this writing is in final stages of revision and approval).

4. U.S. Water Resources Council (WRC)

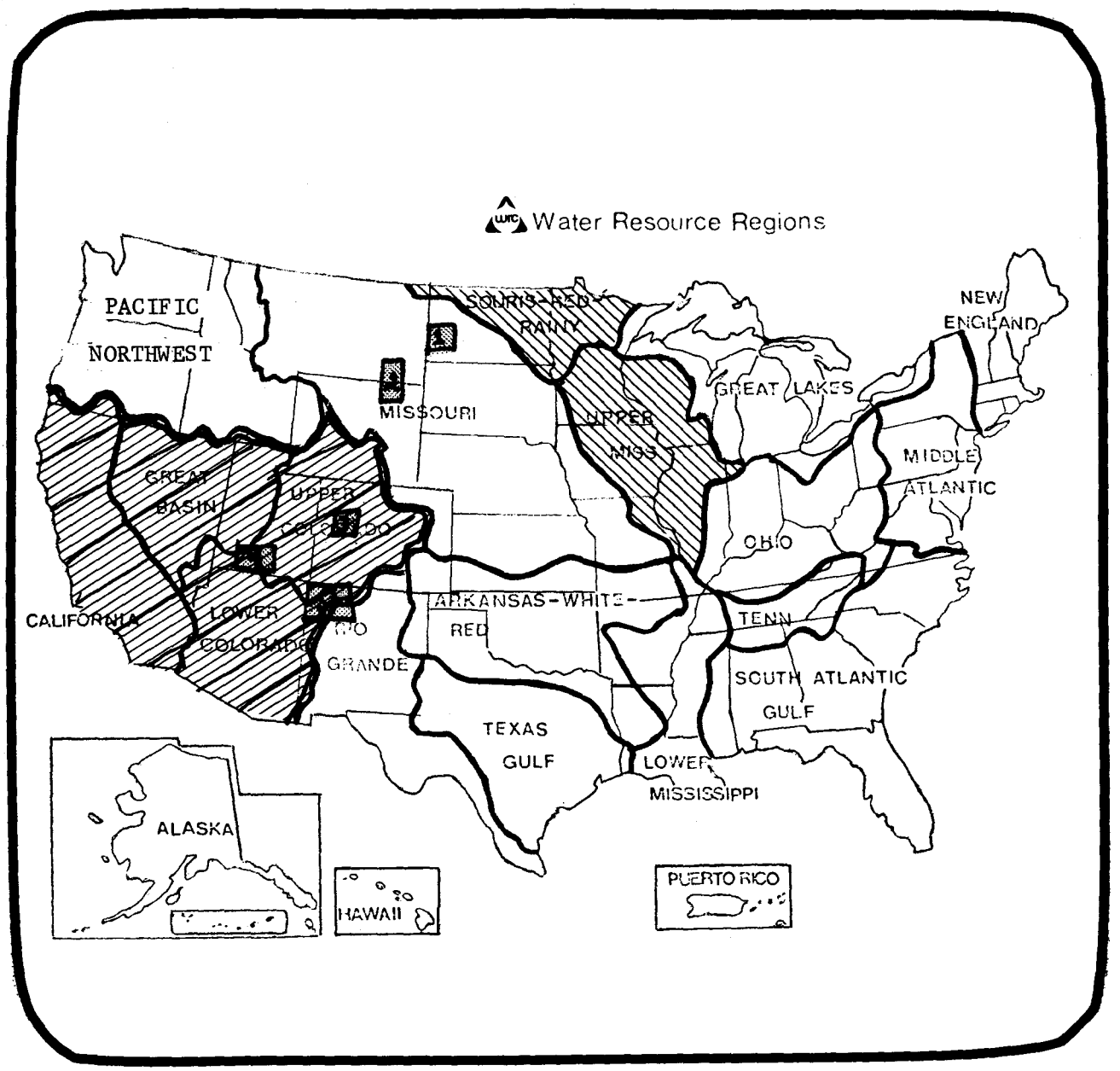
a. Description: Bureau and Decision Processes. Public Law 89-90 (July 22, 1965) states that "To provide for the optimum development of the Nation's natural resources through the coordinated planning of water and related land resources, through the establishment of a water resources council and river basin commissions, and by providing financial assistance to the States in order to increase State participation in such planning", the act (Water Resources Act) be enacted. The map shown as Figure 7 depicts the major U.S. water resource areas for which river basin commissions (RBC's) might be established, to conduct basin-wide planning. In the West, these resource areas include the Missouri, Upper Colorado, Lower Colorado, and Great Basin, which enclose all or most of the "test areas" for this project as are mapped in Figure 1, above.

In Washington, D.C., the Water Resources Council (WRC) is organized in three tiers:

1. Council of Members, being the policy making level, consisting of eight Presidential appointees (Secretaries of Agriculture, Army, Commerce, HUD, Interior, Transportation; EPA Administrator; and FPC Chairman); with Interior Secretary being the Chairman of WRC by Executive Order; meeting about quarterly, usually with Assistant Secretaries sitting in vice the Presidential appointees;

Figure 7.

U.S. WATER RESOURCES COUNCIL PLANNING AREAS



PACIFIC SOUTHWEST

TEST AREAS OF WELUT PROJECT
(See Figure 1, above)

UPPER MISSISSIPPI

NOTE. Only six of the above basins have River Basin Commissions in operation:

Pacific Northwest;
Missouri;
Upper Mississippi;
Great Lakes;
Ohio; and
New England.

2. Council of Representatives, meeting every three weeks to make day-to-day decisions except as to matters specifically reserved for Members; and to review papers that are submitted by any of several committees (from Level 3; see below); these papers are usually prepared by experts in the various departmental agencies; and

3. Several committees, including administrative ones (policy Committee, Planning Committee, National Assessment Committee, and Energy Development Implications (EDI) Committee; and technical ones (Sedimentation Committee, Vector (e.g., mosquito Control Committee).

The Department of the Interior member of the second level, Council of Representatives, is the Director of Water Resource Policy Coordination in the Office of the Assistant Secretary for Land and Water Resources. Experts from various agencies serve on the several committees of Level 3, including persons assigned both on short-term and long-term duty from the Fish and Wildlife Service; these individuals have served on or with the Energy Development Implications Committee. All of the service is temporary, and is of three types: (1) committee membership; (2) participation in short-term projects; and (3) committee meeting attendance, as an expert sitting-in.

Independent river basin commissions come into existence only upon application of State governments which petition for their formation. WRC serves these commissions as a budgetary office and provides a clearinghouse to forward RBC reports on to the President and Congress; WRC is not a director of RBC policy. WRC's "Principles and Standards" act as the operational guidelines for Federal studies in RBC areas; the coverage of Principles and Standards is outlined in the document itself.[1]

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[1] 38 Federal Register 24778 (September 10, 1973), which succeeded "Policies, Standards and Procedures in the Formulation, Evaluation, and Review of Plans for Use and Development of Water and Related Land Resources", U.S. Senate, 87th Congress, 2d Session, Document No. 97 (May 29, 1962).

States in the Southern tier have tended not to ask for the creation of RBC's in their area; rather, these States have acted directly through their Congressional delegations to obtain approval of water resource development projects. The Pacific Southwest Interagency Committee, PACSWIC, which deals with four water-resource-development regions, is an example of this approach.

RBC's have several modes of planning, of which Level B, Level C and CCJP (Comprehensive Coordinated Joint Plan) planning are the most relevant to energy development:

> Level B and Level C (implementation study) planning are defined in WRC Policy Statement No. 1 (1970); Level B studies analyze a period ranging from the present to 15 to 25 years out, are usually limited to two years' duration and $1 million upper cost; no new data may be collected; Level B's cover areas smaller than water resource regions; and under Policy Statement No. 3, Level B's may be updated and are thus really interchangeable with CCJP's;
>
> CCJP planning has been defined by each of the RBC's to become operational; CCJP's are called for in the 1965 Act, and are starting out as extensions or replacements for certain Level B studies, or elsewhere as new starts without Level B's; CCJP's will eventually meld together all Level B's and/or any smaller CCJP's to form a single CCJP for each RBC basin; new data may be collected in a CCJP; CCJP begins with a thorough inventory of existing resources, annually revised; thus, CCJP is both less expensive, speedier and more responsive than Level B, though it may be either more or less detailed than Level B; and
>
> Level C is the plan to be adopted by an RBC for actual development of water resources.

RBC budgets are set up at three levels at WRC with OMB and Congressional approval: (1) operating budget, with 50-50 cost sharing between Federal and State components (State portion in cash); (2) CCJP budget, with 75-25 cost sharing (again, State portion in cash); and (3) new start Level B budget, or special studies budget, with 75-25 cost sharing (State portion

may be in kind as well as in cash). For Fiscal Year 1978, forthcoming, two special studies have been proposed to Congress, (1) New England Hydropower Expansion Study, and (2) Great Lakes Environmental Planning Study. Both of these may collect new data. Special studies are different from the other categories previously discussed in that they are uniquely set up and may be quite unfettered as to duration, total cost, or other features.

River basin commissions deal directly with the Fish and Wildlife Service regional directors in seeking FWS technical assistance (loan of staff) to accomplish Level B work or in data reconnoitering. On national water resources policy matters, RBC's deal with FWS headquarters in Washington, where fish and wildlife values are concerned. The actual Level B planning staff is expected to be provided by the participating States which make up a basin; occasionally, however, these individuals as well as data are promised but cannot be delivered. In these instances, FWS tests its own resourcefulness by trying to fill both staff and data gaps, though it does so with uneven success. Credibility of the participating agencies suffers when such events occur.[1]

b. Issues. The Water Resources Council restriction on new data collection in Level B planning seems to have been a drawback in those cases where serious data gaps have been uncovered, because they could not be filled. Also, the Fish and Wildlife Service has not historically done intermediate or long-range comprehensive planning as with Level B or CCJP, and though the States have for some years been encouraged by

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[1] As a counter-example, the Twin Cities (Minneapolis-St. Paul) Level B plan has been cited as an unusually successful document.

Federal legislation to do comprehensive planning, they have only gradually developed their skills and tend to rely on FWS.[1] FWS, though, lacks comprehensive data and an organized research tradition for comprehensive planning.

Furthermore, the existing RBC's have had some difficulty coordinating with FWS, and have also had difficulty in accommodating statutory requirements for critical environmental areas which require special protection; this protection can be provided at reasonable cost only if there be careful planning of resource use beforehand (planning that takes into account various alternatives, mitigation techniques, reclamation methods, etc.).

Also, the States tend to be seriously understaffed with field biologists who could compile and interpret ecological data to the extent needed. Proposed Level B guidelines are currently under review by an ad hoc committee to remedy some of these defects and deficiencies.

c. Recommendations. River basin commissions obtain technical services through Federal and State agencies and by letting contracts to appropriate entities. The commissions are largely a forum in which different interests and points of view may be heard. Ideally, the State legislatures would adopt the Level B final plans or the CCJP's as set forth in complete form at any given moment. This would strengthen the position of RBC's, which do not have any statutory sanctions. Joint Federal-State action could also be taken to promote RBC review and approval as to any proposed Federal-State-private water resource development actions; this would also greatly strengthen RBC's.

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[1] The Dingell-Johnson Sport Fish Restoration Act, 16 U.S.C. 777-777k, at 777e(a)(1), and Pittman-Robertson Wildlife Restoration Act, 16 U.S.C. 669-669i, at 669e(a)(1), direct that Federal taxes on fishing tackle and hunting equipment be used to induce States to plan comprehensively for resource management.

Because each Cabinet department that is represented on WRC is also represented on each RBC, the competing interests are fairly evenly balanced. The Regional Coordinators (one for each department) are the departmental spokesmen. A key difficulty is that intra-departmental coordination is not always effective, so that the Regional Coordinator cannot speak with assurance the thought-out view of his department, cutting across the several agencies therein.

To the extent it might help, reorganization of WRC to meet some of its institutional needs is being proposed in the U.S. Senate. Among the changes would be to have the WRC Chairman be a separate full-time individual appointed by the President, someone without Cabinet responsibility for another agency which happened to be a WRC member. If this idea were followed, it would be in the pattern of the Council on Environmental Quality chairmanship.

From the Fish and Wildlife Service point of view, the important thing is for FWS to know what it is about: to be able to recommend mitigation or outright approval, or flatly to oppose a proposed action, with reasonable assurance that the position taken will not be contradicted by later findings. This kind of success requires early data collection and interpretation, and even earlier notice of what areas are in need of study. FWS must participate fully in the water resources studies that occur, and keep its focus on data and data analysis.

5. Energy Research and Development Administration (ERDA)

a. Description: Bureau and Decision Processes. The Energy Research and Development Administration (ERDA) sponsors large-scale research or demonstration projects that directly affect energy lands because of their location and intent. Examples are the oil shale extraction and retorting project and the various coal gasification or liquefaction projects.

Private contractors do the bulk of ERDA engineering design, construction and operation, funded by ERDA. The contractors include energy companies, public utilities and other high technology firms.

ERDA is the successor to several other agencies, including the former Atomic Energy Commission development units and the Office of Coal Research in the U.S. Department of the Interior.[1] The disparity of these sources of ERDA has led to a certain disparity between ERDA formal rules and actual practices respecting environmental protection. The stringent formal rules originated in the AEC, but the somewhat less stringent actual practices of some ERDA units reflect the non-AEC roots of these units.

ERDA development decisions are coordinated by the Water Resources Council, which was discussed in the previous section. Representatives from various agencies, including the Fish and Wildlife Service, serve on the review committee. Evaluation of ERDA projects for ecological soundness can be accomplished at the early WRC ERDA committee review.

Projects for which a well-developed technology exists are usually bid by contractors on a package basis, in which sites for the proposed work are identified as well as their ecological hazards. Contractors obtain this information from their own biologists or from environmental contractors. An example would be a proposal by a large midwestern public utility to convert coal to gas using coal from one of its own mines. The utility would contract for the engineering design, construction and operation of the facility, probably located at or near one of its own coal mines, and using its own standard financial sources and lines of credit (hence the terminology "package").

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[1] Energy Reorganization Act, Public Law 93-438 (January 19, 1975).

Projects that lack a mature technology must begin with contracts designed to advance that technology--the conceptual phase. Commercialization of successful pilot plants implies eventual proliferation of large-scale units, with multiple, larger impacts than caused by bench or pilot operations. The WRC committee must evaluate these possible eventualities for any given case.

b. Issues. ERDA has expressed a willingness to have FWS participate even more directly in the ERDA project evaluation process, in which contractors are selected. ERDA is committed to a fairly tight schedule, however, so FWS participation might be constrained by as little as a 90-day period for any given review. FWS would be unable to conduct successful collection of new data, or data covering more than a few weeks at best, although archival information could be assembled and interpreted for the desired purpose, if such information were available. FWS would have to be prepared to accept the ERDA time constraints and to live with the limitations on data quality and comprehensiveness. One way or another, FWS would be expected to co-sign the evaluation document and to indicate any reservations it might have; the decision flowing from the document would, however, have to be a go, no go result, perhaps over-riding FWS data reservations.

c. Recommendations. There are several recommendations not unlike ones that have been made earlier for FWS consideration. These include (1) development of a priority system for determining which situations to evaluate; (2) development of a scheme for monitoring commercialization schedules and projects; (3) formulation of data specifications, collection and analysis techniques that will be speedy and responsive--that will rapidly assess important ecological impacts; and (4) assembly beforehand of possible alternative

compromise actions that FWS would be able to propose and negotiate with ERDA when considering any given project.

6. Bureau of Reclamation (BuRec)

a. Description: Bureau and Decision Processes. The planning and decision processes of the Bureau of Reclamation (BuRec), another sister agency of FWS in the Department of the Interior, are presented in Figure (exhibit) 8. Again, fish and wildlife values have to be introduced early because Congressional authorizations for BuRec projects develop constituencies and momenta of their own. There is a large backlog of unconstructed projects which have been authorized but not yet funded by the Congress, and it is to these that FWS might well direct some of its attention. These authorized but unappropriated projects all have a sufficient lead time (without disrupting future construction schedules) to permit FWS to determine what information is needed beyond fish and wildlife provisions already included in each project's authorizing legislation, and to start collecting such information for those sites which require preconstruction changes.

BuRec projects located in the 17 Western States provide water and electricity. BuRec is a marketing as well as development agency, and recovers approximately 84 per cent of project costs. Its multipurposes are to provide water for irrigation, municipal and industrial use, hydropower, recreation, fish and wildlife, water quality and flood control. BuRec diversions and impoundments are thus dedicated to more uses than works of, e.g., the U.S. Army Corps of Engineers, which are mainly concerned with flood control, navigation and hydropower (dikes, levees, channel straightening, locks, etc.). Both BuRec and the Corps are under instructions to achieve some balance among aesthetics, water recreation, and fish and wildlife values, together with their more immediate objectives.

BuRec projects are of large size and have a large impact on fish and wildlife habitat. The EIS process for them is anticipatory but in the case

Figure 8.

BUREAU OF RECLAMATION PLANNING AND DEVELOPMENT PROCESS

1. The Bureau of Reclamation (BuRec) plans and develops water and related land resources in the 17 contiguous Western States, and is organized as shown in the chart, with regional offices as shown in the map.

2. An initiator--local government, nonprofit development agency, entrepreneur, citizen, or other--expresses interest in water impoundment or diversion for agricultural, municipal or industrial (mining) purposes.

3. Initiator discusses proposal with local BuRec office, and learns there of program requirements, constraints and other relevant matters.

   Appraisal Study. A recognized local entity may request formally a preliminary evaluation or appraisal of the proposed project; the entity must contribute 50 percent of the appraisal cost. Alternatively, the Congressman for the project area may request the appraisal, which would then be prepared by BuRec from its budget without cost-sharing locally.

   Also, BuRec may itself propose an appraisal in its annual budget request, subject to DOI, OMB and Congressional approval. Finally, the responsible subcommittee on appropriations may unilaterally initiate the budget item.

   Appraisal results in a recommendation for or against proceeding to a feasibility study.

4. Following Congressional funding in the annual BuRec budget in the appropriation as signed by the President, BuRec regional office does appraisal and reports to the Commissioner's office in Washington, D.C.

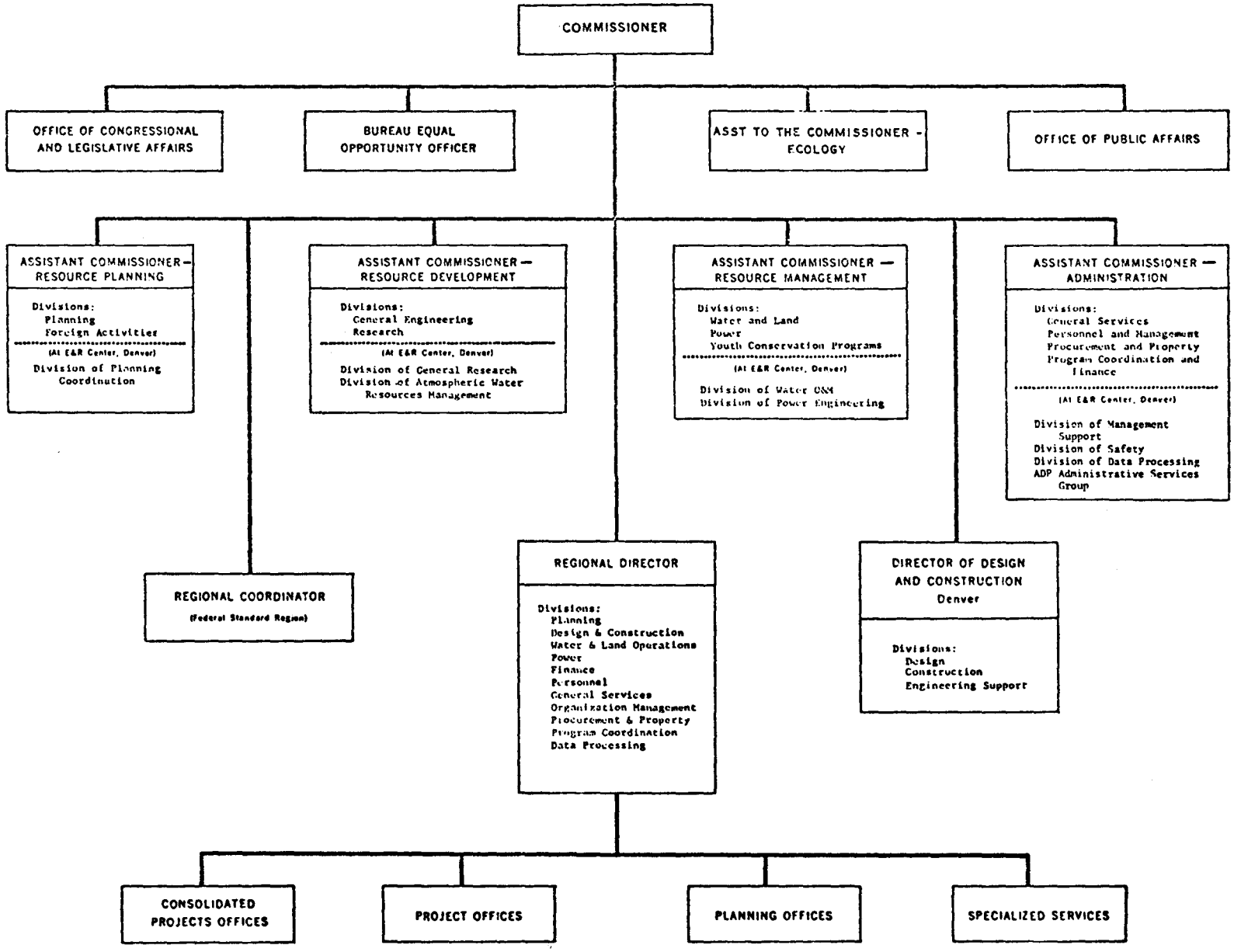
5. BuRec recommends a more detailed feasibility study where warranted and includes costs thereof in next budget request. Constraint on this is the actual availability of BuRec planning staff.

   Feasibility Study. Feasibility analysis in detail of alternative plans using economic, environmental, physical and social information must be authorized by Congress. It results in a recommendation for or against project construction authorization.

   Congressional Authorization. BuRec appropriations are processed by the U.S. House and Senate Committees on Appropriations/Subcommittees on Public Works; BuRec legislative authority passes from the U.S. House Committee on Interior and Insular Affairs/Subcommittee on Water and Power Resources and, on the Senate side, from a subcommittee of the Committee on Energy and Natural Resources.

6. A proposed feasibility study approved by the Secretary and OMB is then included in the President's budget; alternatively, as with appraisals, a Congressional delegation may be able to obtain funding via the appropriations subcommittee in a write-in line item.

ORGANIZATION - BUREAU OF RECLAMATION



REGIONAL ORGANIZATION-BUREAU OF RECLAMATION RELATED TO FEDERAL STANDARD REGIONS

5-18-72

7. Congressional appropriation (and Presidential signature) funds a feasibility study via the BuRec annual legislation.

8. BuRec performs the feasibility study in its regional and field offices.

   The Regional Director submits his proposed feasibility report to Washington and the Engineering and Research Center/Denver, for review as to technical adequacy and compliance with policy guidelines. Regional office makes revisions in line with comments received.

9. Regional Director forwards completed report to Commissioner with affirmative or negative recommendation as to development proposal.

10. Washington office prepares a Commissioner's proposed report for 30-day DOI review.

11. Revised Commissioner's report is forwarded as Commissioner's draft recommendation to the Secretary.

12. The draft recommendation is then forwarded to other agencies and Federal departments and States and other bodies for comment over 90 days.

13. Comments from item (12) are received by Commissioner, BuRec; BuRec then revises draft to become Commissioner's final report to the Secretary.

14. If Secretary's office approves report, it is then forwarded to the President via OMB to determine whether it fits into the President's program (is consistent with the President's plans).

15. If OMB approves, Secretary sends feasibility report to the Congress.

16. Congressional delegation introduces a bill to authorize Secretary to construct, operate and maintain the project.

17. In legislative process, DOI units (including FWS) may testify as departmental witnesses and also provide information and viewpoints in the departmental report on proposed legislation.

18. If Congress approves construction, and President signs the enabling statute authorizing construction, BuRec puts a line item in its next budget request for an appropriation.

    There must be a responsible local entity such as a special district (e.g., irrigation district) or other unit empowered under State law to acquire funds for repayment of project costs through valuation and taxation.

Note: It may take from two to ten years to achieve item (18) status above. An additional two years might pass before actual physical development would occur.

Note: Environmental impact statements (EIS's) are prepared and accompany reports through the review processes listed above.

Note: The Fish and Wildlife Coordination Act of 1934, as amended, authorizes BuRec to transfer funds to the Fish and Wildlife Service to undertake data collection and analysis in furtherance of the appraisal process (item (4) above) and feasibility study (item (8)).

of projects authorized prior to the NEPA rules, not sufficiently early to influence them much as to scale, location or configuration. Projects now in planning are compliant to NEPA and Water Resources Council Principles and Standards.

b. Issues. BuRec, as a Federal developer of Western land and water and electricity marketer from dams and transmission lines, is a leading developer thereby of Western energy. If substantial water requirements must be met in future, ways of doing so will call for long range analysis on a basin level, particularly as to BuRec developments (see Section 4, above).

To the degree that BuRec is designated the water supplier (perhaps even by interbasin transfers),[1] it will be necessary to have a close working relationship with FWS. An interagency memorandum of understanding would be the preferred way of setting up this relationship.

Such a memorandum would go beyond the Fish and Wildlife Coordination Act of 1934, as amended, by authority of which BuRec provides funds directly to FWS for project-by-project fish and wildlife data collection and analysis.

c. Recommendations. It is recommended that FWS and BuRec develop an interagency memorandum of understanding to provide for scheduled review of projects and for data specification and interchange.

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[1] Phil Q. Gibbs, "Availability of Water for Coal Conversion", American Society of Civil Engineers Meeting Preprint 2561, November 3-7, 1975.

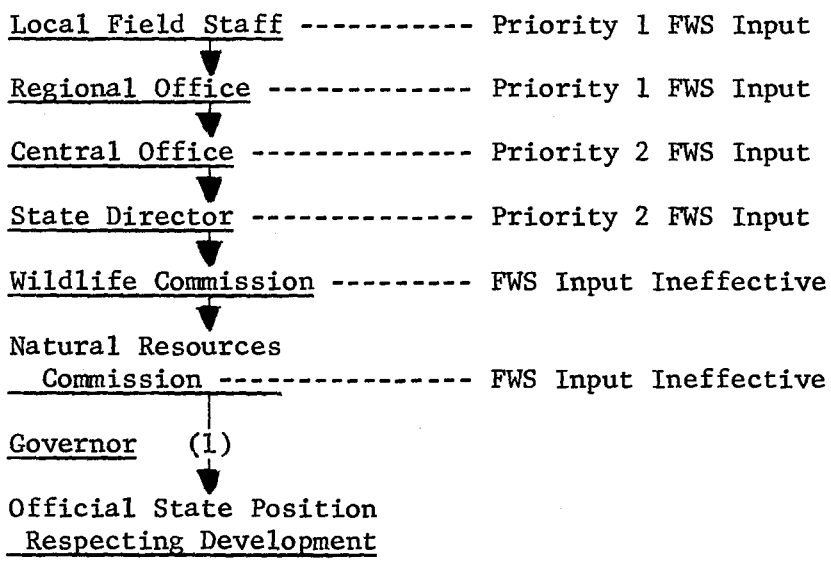
B. STATE AGENCIES

1. General

Figure 9 below shows the usual decision process encountered in State wildlife agencies concerning energy development. FWS should follow the priorities outlined in the figure -- preferably providing data to local field staffs and to regional offices rather than to central offices or to State Directors.

Figure 9.

STATE WILDLIFE AGENCY DECISION PROCESS



(1) In Montana, the Governor does not determine the final official position as to development.

The important point is for FWS to make contact with the various State agency field and regional offices and, using a screening system to identify the most important sites that demand attention, provide these offices with data for those sites--data as to fish and wildlife endangerment or threat, migratory bird requirements, and so on, and to do so timely.

2. Montana

The Montana energy decision process is controlled by several State enactments: (1) Utility Siting Act, 1973; (2) Montana Environmental Policy Act; (3) Water Use Act; and (4) Surface Mine Reclamation Act. The State position is further strengthened by the Department of State Lands, which assumes responsibility for reclamation plans and performance on State and Federal lands to be mined.

The Utility Siting Act gives an excellent early warning because private industry is requested to disclose voluntarily their development plans 10 years in advance, and to update these disclosures annually. Industry seems to be complying.

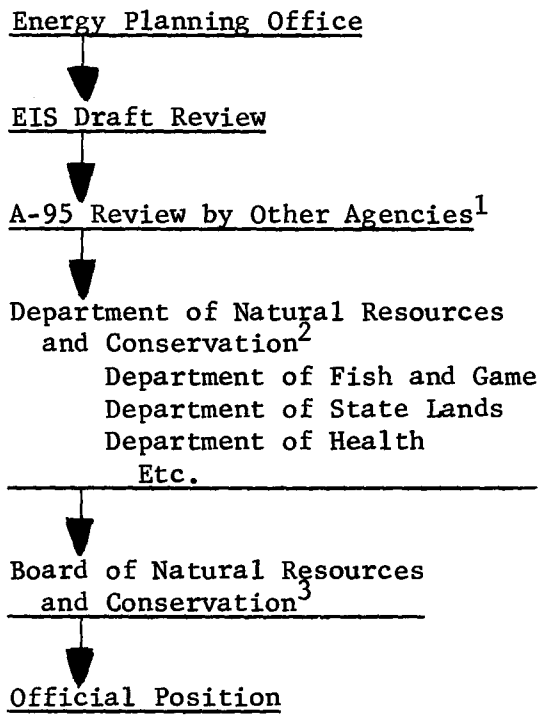
Wildlife resources in Montana seem to receive more consideration in the EIS review process because of the above acts, than is true elsewhere in the Rocky Mountain States. The Department of Natural Resources and Conservation is a key agency in this process, and is the one to be advised of wildlife resource concerns. The Department of Fish and Game assumes a strong advocacy position in its endeavors to help wildlife resources, as well as to influence the Board of Natural Resources and Conservation in its decisions.

Other Montana agencies look to the Department of Fish and Game for information and guidance on wildlife resources. The Governor is omitted from final control as to these resources, final authority being vested in the Board. Governor and cabinet may reveal their dissenting views, but this is rare and they are not binding.

The EIS review process for Montana is shown in Figure 10, below.

Figure 10.

MONTANA EIS DECISION PROCESS



[1] Refers to U.S. Office of Management and Budget Circular A-95 that provides for State and local coordinated review of proposed Federal actions; the Department of Natural Resources and Conservation is dominant in this review process for energy matters.

[2] The Department of Natural Resources and Conservation determines which other agencies and sub-departments should be involved in reviewing energy matters, and provides inter-agency coordination.

[3] The Board of Natural Resources and Conservation is a policy-making body, and its decision is final even if the Governor disagrees.

3. New Mexico

Energy projects in New Mexico follow a process similar to the other Rocky Mountain States in respect to the A-95 review. In New Mexico, the coordinating clearinghouse is the Office of Energy Analyst, New Mexico Environmental Improvement Agency. This office is also a key review point, which is in contrast to the Colorado clearinghouse which is coordinative only.

The New Mexico Game and Fish Department provides the most significant review as to those resources, and the other agencies look to this one for guidance on wildlife matters generally. Differences of judgment are resolved by the Governor's Natural Resources Commission, with the governor giving approval. His position, in any case, is final, which is a most important distinction between New Mexico and Montana, where the governor does not have final disposition of a matter. These two States are at polar extremes on this point.

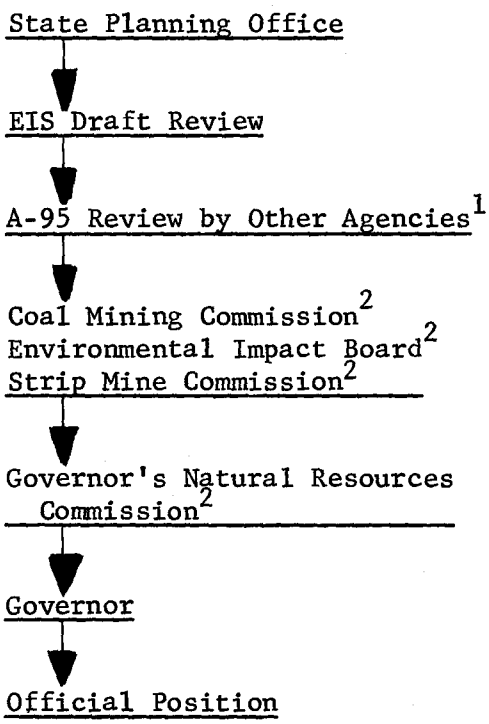
FWS input in New Mexico should mainly be to the Game and Fish Department, but the Office of Energy Analyst is also receptive to data concerning wildlife resources and threatened and endangered species. The extensive New Mexico Indian lands are excluded from any systematic EIS review process, although energy developments thereon will undoubtedly have a very large environmental impact on habitat and wildlife. Both State and Federal agencies steer clear of Indian energy development issues.

One concludes that wildlife resources, for the most part, do not receive adequate consideration in New Mexico's energy project development decision process. The State is just now on the brink of tremendous coal mining development but has a very naive attitude as to the unenviable, inevitable problems which are approaching.

Figure 11, below, shows the New Mexico decision process.

Figure 11.

NEW MEXICO DECISION PROCESS



[1] A-95 review is conducted by agencies whose heads express interest therein at regular staff meetings;

[2] Citizen group appointment by Governor with interested heads of departments sitting in.

4. Utah

The energy project decision process in Utah is strongly influenced by an orientation towards energy development, which is expressed in the legislature and especially by the Governor's office. Their theme of private development suggests that wildlife resources may suffer heavily under the current decision process.

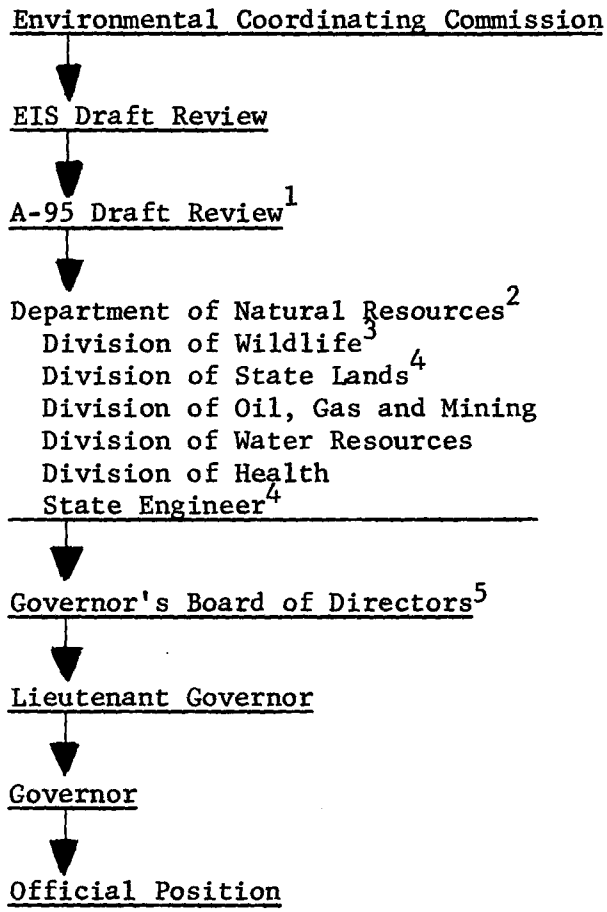
It is especially important that wildlife resources information be provided under these circumstances. It should be made available at the Utah Division of Wildlife level. Information proferred at higher levels would probably not be given much consideration.

The Division of Industrial Development plays a strong role in the decision process in Utah, but is not oriented towards renewable resources such as wildlife. As in Colorado and New Mexico, Utah wildlife resources are dealt with inadequately. The Division of Wildlife is under-funded, and cannot meet in-State demands for adequate, current, quality resource information. Hence there is severe weakness in the assessment of proposed actions and in the development of mitigation plans. The situation seems to be one of prolonged rear-guard action in retreat. Migratory birds and big game are both facing a losing battle in Utah.

Figure 12 at the next page shows the Utah decision process.

Figure 12.

UTAH DECISION PROCESS



[1] Department of Natural Resources dominates the review process; the two top officers of this department are appointed by the Governor.

[2] The Department of Natural Resources determines which agencies are appropriate to provide review, and is responsible for sub-offices coordination.

[3] Participation optional.

[4] Participation required.

[5] Citizen's Group appointed by Governor, with Head, Department of Natural Resources, sitting in.

5. Colorado

The Department of Natural Resources is a key State agency in Colorado energy land development. The Department includes the Division of Wildlife, which is respected for its extensive knowledge of fish and wildlife, and the Water Conservation Board, which is a water planning/policy-making body that is developing Colorado minimum stream flow specifications. Other agencies include the Division of Water Resources in the Office of the State Engineer, which issues permits for wells and thereby allocates groundwater; the State Water Courts, which adjudicate water allocations; and the Mined Land Reclamation Board, a recently added quasi-independent body which is now preparing regulations as to State mining permits and mined land reclamation associated therewith.

Besides the above, the Colorado Department of Health/Water Quality Control Commission monitors and enforces water quality standards by a permit issuance and inspection process.

State land use planning is still in a developmental stage. The principal effort is carried out by the Division of Planning in the Department of Local Affairs, and by the Colorado Land Use Commission. The latter is now developing a land use plan, acting under Colorado House Bill 1041 (a statute), and is identifying at the county level the key physiographic areas as the first step in the process.

Neither of the two State land planning bodies has yet established particular credibility with county commissioners or planning officials, who feel that the State is moving in on what have traditionally been local responsibilities.

The State clearinghouse function, which coordinates under U.S. Office of Management and Budget Circular A-95 the process of review and comment on proposed Federal actions, is supervised by the Colorado Division of Planning. The Division acts only as a secretariat, however, and does not itself provide substantive comments.

At the local level, governmental participation in energy related decision-making is fairly limited. County commissioners and planning officials are not usually involved, though there is the notable exception of Rio Blanco County in northwest Colorado, where the County Planner works with BLM in the oil shale planning process. BLM is kept informed of county land use regulations and special use permit requirements. In other counties, the officials tend to restrict themselves to review of special use permits that are to be issued after Federal leases have already been granted.

Also at the local level, regional councils of governments (COG's) likewise limit their activity to reviewing and commenting on environmental impact statements (EIS's). Advocacy groups, such as the Sierra Club and Colorado Open Space Council are civic watchdogs and are therefore active in the EIS review and comment process. Generally they are allied to conservation interests and have brought lawsuits in several States in connection therewith.

6. Wyoming

Agencies active in Wyoming in the energy decision making process are the Department of Environmental Quality (DEQ), the Industrial Siting Administration, the Game and Fish Department, and the Office of the State Engineer. DEQ regulates land, water and air pollution, and its Land Quality Division issues permits for mining and approves and monitors mined land reclamation plans; the Water Quality Division issues permits for point source surface discharges and construction of water supply and waste water treatment plants.

The Industrial Siting Administration issues construction permits to prospective business activities larger than $50 million in size. The Game and Fish Department is recognized as the authority on fish and wildlife resources, and provides information on these matters to other State agencies. They would welcome additional contact with the U.S. Fish and Wildlife Service for data.

The allocation of water in Wyoming is supervised by the State Engineer, while the Department of Economic Planning and Development (DEPAD) oversees development of additional water impoundments and supply.

In addition to DEPAD, the Office of the State Planning Coordinator and the Land Use Administration (staff to the Land Use Commission) share responsibility for State planning. DEPAD has been using HUD 701 funds (U.S. Department of Housing and Urban Development) for community development programs and administration. The Land Use Administration is pressing each of the State's 23 counties to produce a county land use plan; taken aggregatively, these will form the basis for a State land use plan, which is still

some time off. This plan could play an important role in deciding what kinds and types of land reclamation should be specified for different mined areas.

The Wyoming State Planning Coordinator oversees the A-95 review and comment process.

The Game and Fish Department has identified and classified stream segments, and is now engaged in developing a sound technique for detailed evaluation and ranking of these segments. The evaluation will consider aesthetics, access, and fisheries productivity -- the biological habitat basis. Minimum stream flow recommendations will be prepared thereafter. The FWS (Denver and Fort Collins, Colorado offices) has been assisting in this work, both technically and financially.

At the local level, county planning in Wyoming is only now in its earliest stages. It will be some time before local involvement in energy decision making as to Federal lands can be evaluated.

As in other States, the advocacy groups (such as the Sierra Club) are active in Wyoming and exercise their customary civic role.

Wyoming has negotiated a path-breaking agreement with the Secretary of the Interior allowing Wyoming to oversee the reclamation of mined land in accordance with Wyoming standards, which are equivalent to or more stringent than Federal standards. Other States will probably follow this lead and, were they to do so, their work would be greatly facilitated by having a good State land use plan at the ready. This kind of document would offer guidance as to a diverse set of post mining options, taking into account good locations for fish and wildlife habitat construction (pools, windows,

windbreaks, etc.), and locations for other kinds of development, such as small airports or airstrips, urban water impoundments, industrial parks, etc.

7. State Recommendations

From the above, it is clear that opportunities exist for the U.S. Fish and Wildlife Service to provide quality data, timely, reinforced by submitting it to various users, at an appropriate mostly field level, in each of the States examined here (Montana, Wyoming, Colorado, New Mexico, and Utah). The word "timely" here means "early in the planning and decision process". In Montana, in particular, the industrial siting law has induced private firms to disclose years early their intentions as to site development. This, in turn, has allowed much more comprehensive knowledge of future events and also longer lead time for research, analysis and drawing of alternative actions and recommendations to mining companies.

It is also clear that the many widespread developments underway or under consideration will cause FWS to scatter its shot ineffectually unless it is selective as to its areas of response. This calls for a good set of criteria which should be developed to screen out the less important situations. There will also be a premium for FWS skill in keeping abreast of developments and in working out quids-pro-quo with sister agencies in any Federal, State or local government or party.

III. DISCUSSION AND RECOMMENDATIONS

A. CRITICAL ISSUES

1. The EIS Process

The EIS process is only partially effective in protecting the country's fish and wildlife resources because of (i) a lack of current, quantitative, quality information for assessment; (ii) a typically too restricted array of alternatives and tradeoffs being considered; (iii) frequently inadequate or impractical mitigation and enhancement actions being presented; and (iv) a too-often cumbersome EIS technique that is entangled in red tape and hindered by agency and individual assertions of "territoriality".

2. Action Alternatives

Alternatives affecting wildlife resources are often given low priority and tend to drop out as a project review proceeds up the agency hierarchy. Also, and perhaps even more important, the alternatives considered by private industry (or not considered) are not necessarily known to the reviewing agencies.

3. Information Needs

The Federal agency with the most, best and effective data will be dominant in the critical decision processes. For FWS to gain a leadership role, it must have information that other agencies recognize they need.

4. Data Service Base Needs

There is a need for consolidated, cooperative, coordinated Federal interagency wildlife resource data organization. BLM and FS already have funded, computer-oriented data base programs, but the classification

schemes and notations are not compatible. A wildlife resource classification system with priorities is needed, based on considerations of endangered species, threatened species, critical habitats, sensitive habitats, crucial ranges, and minimum stream flow requirements. From this data base it should be possible to derive wildlife resource quality of life criteria and standards.

B. FWS OPPORTUNITIES

There are many areas where FWS can strengthen its position as well as benefit the wildlife resource. Some of these are discussed below.

1. Information-Input Areas

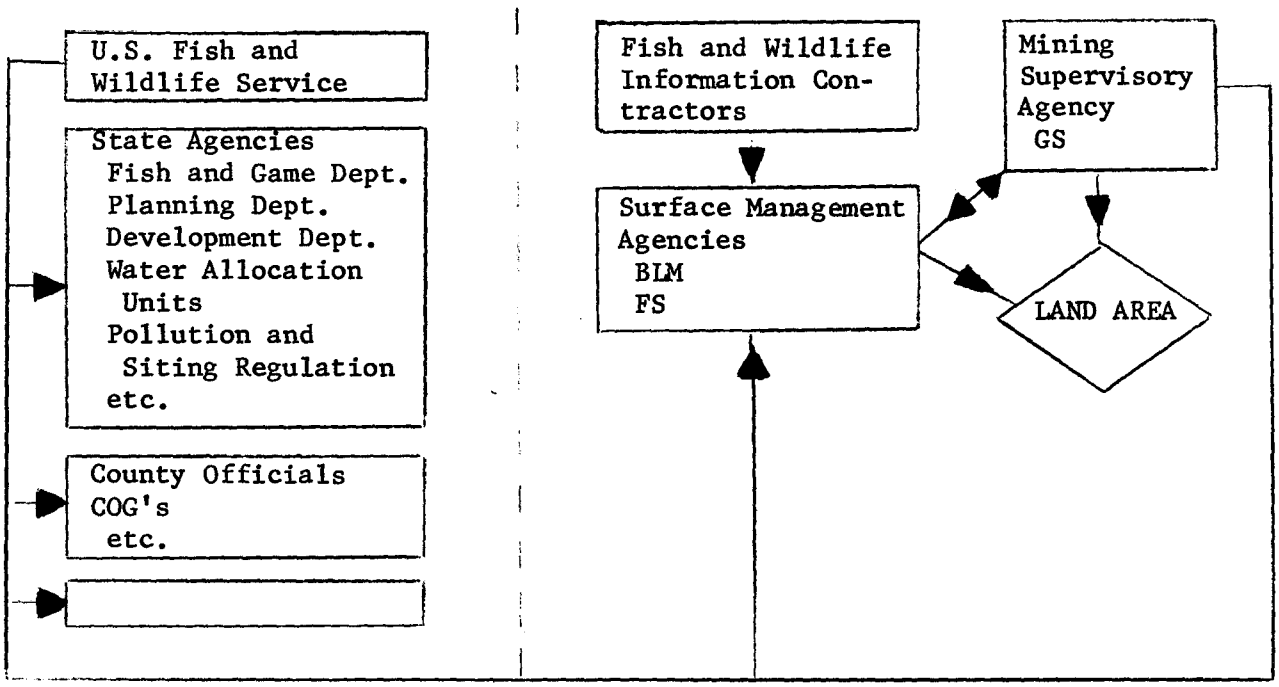
The most effective spot for insertion of wildlife information is at the field level of cooperating agencies, advocacy groups, etc. This means the Unit Area Resource Manager for BLM and the District Ranger for the Forest Service. To be considered in the EIS process, wildlife information should be inserted no higher than the BLM State Director's office nor the State Director of a State Department of Fish and Game.

In general, the opportunities for FWS input in Western energy land development decision and planning processes can be diagrammed as shown in Figure 13 (see next page).

In Figure 13, all of the agencies to the right of the vertical broken line are entities that can work together self-sufficiently to plan and to make decisions respecting any given Federal energy land. Input from the U.S. Fish and Wildlife Service, State agencies and local officials and advocacy groups is strictly optional, according to existing arrangements.

Figure 13.

INFORMATION FLOW MODEL OF WESTERN ENERGY LAND DEVELOPMENT PLANNING AND DECISION PROCESSES



Opportunities for FWS input abound, however, able as it is to communicate with all of the entities shown in Figure 13. It may do its research and provide this to State agencies, county and local officials, and advocacy groups, as well as to the surface management agencies (BLM, FS) and the mining supervisory agency (GS).

2. Information Characteristics

Visual materials portraying the situation are very good. Thus, maps, overlays, diagrams, photographs, figures and tabulations are more acceptable than an extensive prose text. The criteria are:

Quantified (in-depth, concise, informative, relevant, plausible, representative mass data);

Qualitative (adequate for at least parametric statistical analysis, and professionally complete with citations, references, etc.);

Current (timely, show trends, be recent and cover a significant time span);

Practical (affordable to collect, objective, and useable for group decision making or planning);

Flexible (indicate priorities, alternative choices considered or not considered, constraints, and trade-offs--extent of losses and gains);

Positive (emphasize what can be done by mitigation and enhancement techniques);

Perspective (embrace peripheral, indirectly-affected areas as well as the central impact area); and

Pointed (emphasizing highest-leverage situations of endangered and threatened species, non-game species, critical and sensitive habitats, and lesser known organisms among plants, fishes, amphibians and reptiles).

FWS must communicate its information in a timely way, i.e., early in the planning and decision process. To wait for the moment when environmental impact statements are being reviewed is probably too late. Sudden reversals of FWS positions on wildlife resource matters, particularly as a result of late discovery of (e.g.) a threatened or endangered species on a site, are very much to be regretted and avoided. They can be avoided only by thorough, early priority research in archives and on site.

To be able to conduct carefully timed and aimed research means that FWS must keep itself informed as to future developments. It can do so by systematically reviewing published literature in mining, business, commerce, transportation, real estate and related fields. It should also exercise its working relationships with other agencies (Federal, State, local), and advocacy groups.

3. Priorities

Acting on its information received, FWS must then assign priorities --must screen out the less important sites on a systematic, informed basis, and concentrate its scarce resources on FWS statutory requirements and on cost-effective negotiations. A suggested partial priority list is as follows:

1. First Priority: Protect by statutory activity:[1]

    a. Migratory birds/international treaties (1918 act);
    b. Eagles and eagle habitat (1940 act);
    c. Endangered and threatened species (1973 act);

2. Second Priority. Protect by negotiations:

    a. Minimum stream flows and aquatic biota;
    b. Species and habitats sensitive to air, water, noise, and solid waste pollution;
    c. Species and habitats sensitive to toxic substances (e.g., pesticides);

3. Third Priority. Accomplish by negotiations:

    a. Mitigation of adverse environmental impacts by better technology, procedures, timing of site actions (winter vs. summer, etc.);
    b. Exchange of high for low impact sites; and
    c. Enhancement of post-mining fish and wildlife values by appropriate lease specifications or stipulations and mining plan specifications and conditions of approval, and by local land use planning.

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[1] See A Compilation of Federal Laws Relating to Conservation and Development of Our Nation's Fish and Wildlife Resources, Environmental Quality, and Oceanography, for a more complete list. Washington, D.C.: U.S. Government Printing Office, January 1975, plus Xeroxed errata from Chief, Office of Legislative Services, U.S. Fish and Wildlife Service, dated September 22, 1975.

From a legal point of view, FWS priorities and actions should be related to the priority hierarchy of legal documentation: (1) treaties; (2) statutes; (3) Executive Orders; (4) Secretary's Orders; (5) Federal Register rules and regulations, and (6) interagency agreements and memoranda of understanding. In addition, the FWS manual (known as handbook, guidebook, guidelines, or other names in various agencies) should be revised to comply with the orders, interagency agreements or other new arrangements that may be made.

Underlying the above priorities must be a capability in FWS for data collection in the field, and for retrieval and collation of archival data already in FWS files or in the literature, or made available by sister agencies, universities, etc. The model for the Fish and Wildlife Service should be that of an objective scientific research organization with a good research program and communications technique; the U.S. Geological Survey is one good example. Policy oriented research will inevitably be a tandem characteristic in the case of FWS.

FWS will have to provide data that are technically interpreted as to their significance, reliability and comprehensiveness (but not as to the position to be advocated); BLM, FS, GS, and other agencies and local officials and advocacy groups will welcome these materials.

FWS should reinforce its communications by regularly being in touch with field representatives of the various entities shown in Figure 12 above, but also with some not shown there: Bureau of Reclamation, ERDA, Water Resources Council, etc.

FWS should further pursue its habitat classification work, based on (1) the questions to be answered, and (2) the work others (BLM, FS,

Soil Conservation Service, U.S. Army Corps of Engineers, others) are doing in the same field.

Effective classification will facilitate economical monitoring, storage and retrieval of data, mapping, data manipulation, and statistical characterization of fish and wildlife values, or their technical interpretation.

Automatic data processing (ADP) is probably a valuable adjunct to more conventional manuals methods of data handling, but it has risks of high expense for set up and file maintenance, and it can lose a user in and excess of detail. Other agencies are gaining experience in ADP ecological applications and should be approached.

C. DATA FORMATS

Appendix III, previously referred to (at page 19, above), contains many forms which have varying degrees of merit for displaying different ecological variables in several combinations. These forms should be used with maps, and possibly, supported by ADP. Various comments concerning individual forms appear typed in the upper right-hand corner thereof.

The sensitivity of ecological policies to the data interpretation in any given instance is the result of at least three factors: (1) the alternatives being considered (or not considered); (2) the scope and level of detail of the data reported on each alternative; and (3) the system of classification used, which is probably highly correlated with item (2). One might add a fourth factor, recency of data observations and their internal consistency as to time. This is a complex subject that deserves

detailed treatment with case examples, and is outside the scope of this report.

D. RECOMMENDATIONS

The following recommendations are made jointly by the Institute of Public Administration and the National Wildlife Federation to the Western Energy Land Use Team (WELUT)/Office of Biological Services/Fish and Wildlife Service/U.S. Department of the Interior:

- The Fish and Wildlife Service (FWS) should seek a Secretary's Order from the Secretary of the Interior, clarifying and defining the respective responsibilities of FWS, Bureau of Land Management and Geological Survey as to energy development projects.

  There is now considerable overlap and confusion in assumed and assigned responsibilities. The Secretary's Order should take into account the additional recommendations listed below.

- FWS should develop and seek approval of a plan to coordinate inter- and intra-departmental acquisition and technical interpretation of basic fish and wildlife resource information.

  Good research designs and efficient allocation of scarce field scientists can be achieved by effective coordination among agencies, eliminating duplication of effort and allowing teams to be strengthened by making complementary skills available in instances where they are not now available.

  The development agencies (Bureau of Land Management, Corps of Engineers, Geological Survey, Bureau of Reclamation, etc.) and the ecological advice agency (FWS) would be brought closer together, creating a better understanding on both sides of the competing values and pressures that operate on each.

  Although these other agencies have high quality fish and wildlife scientists, they are relatively few in number. On the other hand, these scientists, unlike those in FWS, have good access to the planning analysts and decision makers in their agencies. A

synergistic relationship among agencies would be the goal of the proposed coordination, improving the availability of scientists and the development and evaluation of alternative action programs.

- Establish a procedure whereby FWS could be kept aware of budgetary and other forward planning of the development agencies.

  FWS would be much better able to allocate its own field resources to high leverage, top priority sites, issues and projects if it were well-informed early as to the actions contemplated for study and decision by the surface management and other development agencies. Scheduling FWS could be accomplished in the proposed Secretary's Order, in a Memorandum of Understanding, or similar document.

  Uniform arrangements with predictability to them should enhance performance of FWS in its role of provider of certain information. These arrangements would also enable the development agencies to obtain FWS data early.

- FWS should initiate an early warning system to alert it to its research requirements and to prepare for EIS reviews and contacts with other agencies, private firms, contractors, etc.

  The sooner that FWS commences its relationships with the principals, the more effective it will be in dealing with proposed energy development projects, EIS reviews, etc. An early warning system, including check-off of contacts made, will facilitate being early and focused.

  The development agencies can deal unilaterally with development decisions. FWS, as a key supplier of supplementary data, must discover developments at an early stage in order to have an audience; to find out what is going on early requires being alerted early and having a scheduled relationship with other key players, with thorough follow-up on the contacts.

- FWS should develop a Federal agency cooperative leadership role in analysis and interpretation of fish and wildlife resource information, and develop standards for resource data collection, and act as a data clearinghouse to the extent possible.

There are many sources of data, and prospective users who require timely, high quality fish and wildlife resource information. Collecting and communicating this between source and user has been a major problem.

FWS is in the best position of any Federal agency to specialize in data, and should be given responsibility for taking a leadership role in technical data specification and automatic data processing of what is collected.

ADP systems are being developed by sister agencies and all these systems should be capable of cross-talking to each other. This will require compatible units of measurement and bases of observation, time periods that are complementary, etc. Data standards are needed to assure this communication and to assure that what is communicated is not only conveniently sent and received but also accurate and relevant.

- FWS should conduct, in cooperation with other agencies such as Argonne National Laboratory of ERDA, a program of applied science to evaluate the effects of alternative development and treatment methodologies.

  Applied science research such as that now underway at Argonne National Laboratory should mitigate environmental impacts of mining operations and other energy development projects, and should advance reclamation practices. An interagency program would avoid duplication, improve communication and produce even stronger research results. Such a program would be more comprehensive, eliminate gaps and fragmentary and incomplete data. It would be possible and constructive to collect data sets from various sources and make the sets all available in one place for users.

- FWS should take a strong leadership role in the development of interagency consensus as to critical habitat, endangered and threatened species of plants and animals and migratory birds, both game and non-game, and public policy respecting these elements.

  FWS is the statutory lead agency for protecting endangered and threatened species and critical habitat and migratory birds. FWS should energetically exercise this responsibility in increasing the awareness of its sister agencies, State units and the public.

Strong leadership will reduce risks, uncertainties and costs associated with resource development. FWS will be enabled to spell out its own priorities in advance of specific development proposals.

- FWS should develop a data depiction or display capability to facilitate its planning, early warning and follow-up.

  A data display technique would allow the most speedy assembly and initial organization of the following data:

  Ecological zones, migration paths, nesting/feeding/courting/fawning sites, ranges of endangered or threatened species, land ownership or tenure, several mineral estate and other estate, areas of public concern, local jurisdiction boundaries, mineral resources, active and proposed as well as inactive mining sites, and existing as well as proposed non-mining activities including transport related, water development projects, parks, refuges, new towns, etc.

  Geographic projections and overlays of the above data would assist in monitoring changes with time, would help in identifying data gaps, and facilities needing study on a high, medium or low priority basis. FWS resources could be more speedily focused and efficiently used. Coordination with other agencies would benefit.

- FWS should assign additional professional staff to acquisition, assessment and presentation or communication of fish and wildlife resource data.

  FWS must develop a system to meet the rapidly growing demand for basic data to be available at the very beginning of each new planning or decision process undertaken by the surface management or other development agencies. Early data availability would benefit the sister agencies and would help FWS to formulate advocacy positions that were both legitimate and consistent over time.

- FWS should promote better interagency, State and local understanding of its growing responsibilities in regard to Western (and other) U.S. energy development.

  Rapid enlargement of coal mining and other energy development activities in the West and elsewhere in the U.S. has imposed a heavy burden on the Fish and Wildlife Service, which must examine development sites for

their relationship to endangered and threatened species, critical habitat and migratory birds. FWS must review planning and decision documents, post mining land use plans and extensive similar material. FWS must also perform extensive field work.

These large tasks should be explained to the public, which would be in a better position to turn to FWS for information, and to serve themselves as independent field observers for certain kinds of data.

- FWS should set up a joint program with the Bureau of Land Management, Geological Survey and State and local governments to develop suitable post mining land use plans generally and for specific sites, and to develop suitable language to be included in conditions of approval for operators' mining plans as filed with the Geological Survey.

  The commencement of mining at a site is the commencement of a long-term relationship with the Government, perhaps 40 years or more, during which time the Geological Survey inspects the property for compliance with the mining plan.

  It is important that stipulations on leases and conditions of approval for mining plans be adequate and cover all the elements that will evolve over the 40 or more years of mining. Especially important is the advance planning of the post mining land use. This seems to be lagging behind the development of reclamation techniques and knowledge of socio-economics of Western energy development areas.

- FWS should continue to use existing Federal aid funds to encourage States to improve and standardize their collection of fish and wildlife resource information of primary interest to the States.

  State game and fish departments traditionally have been the suppliers, and often the only suppliers, of fish and wildlife resource data to surface management and other development agencies. State capability in doing this must be maintained. The development of FWS capability to provide data on endangered and threatened species and migratory birds will directly complement the data now being collected by States on the game species.

E. EPILOGUE

FWS has a very large burden of responsibility under the statutes and otherwise in the development of Western energy lands involving the Federal mineral estate, to protect and enhance fish and wildlife values and to press for mitigating activity. FWS resources are, however, scarce, and these resources must be allocated carefully to high-leverage situations. Good information is needed as to on-going developments, selection criteria for identifying the key situations that should be given attention, and a good research and communications program to develop quality data, interpret it technically and provide it to cooperating Federal, State and local agencies and advocacy groups. Good working contacts at the field level are needed, subject to clear Secretary's orders and interagency agreements and memoranda of understanding.

APPENDIX I

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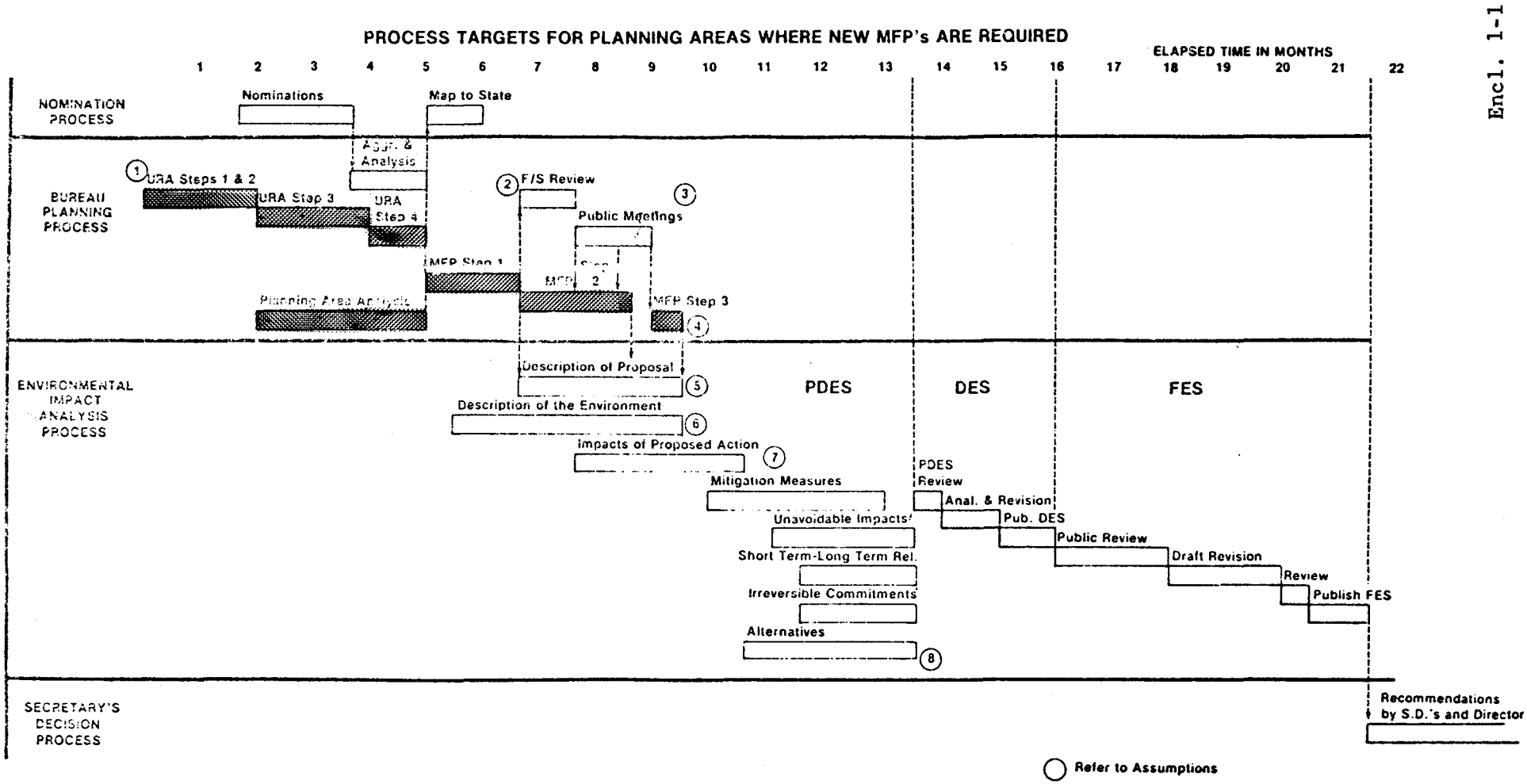
Encl. 1-1

APPENDIX II

BLM COAL LAND USE PLANNING PROCESS



SOURCE: BLM Instructional Memorandum 76-352, of 7/6/76, expires 6/30/77; cites BLM Manual Section 1792.

APPENDIX III

SELECTED PAGES FROM

G U I D E L I N E S

IDENTIFICATION - DESIGNATION - ADMINISTRATION

WILDLIFE HABITATS AND SHORELANDS

COLORADO DIVISION OF WILDLIFE

OCTOBER, 1974

TABLE OF CONTENTS

APPENDIX A

FORMS

APPENDIX A

Form No. 1.--FEATURES OF PUBLICLY OWNED RESERVOIRS [1]

Lake Code No. _____ County _____

Reservoir Name _____ WCO _____

Date _____

Legal Description (to Section): _____

Item	Elevation	Area (A)	Max. Depth
Maximum Storage Level			
Conservation Pool			
Maximum Drawdown			

Length of Shoreline [2]: _____

Restrictions on Public Use [3]: _____

[1] End Product of Step No. 2, Shorelands Identification

[2] To be computed in Denver office

[3] Describe restrictions and by whom imposed.

APPENDIX A

SOURCES OF INFORMATION FOR COMPLETING FORM NO. 1, FEATURES OF PUBLICLY OWNED RESERVOIRS

There are several good sources of information available for completion of Form No. 1, Features of Publicly Owned Reservoirs. Among some of these sources are the following:

1. Information on Special Use Permits.--Check files of local U.S. Forest Service and BLM offices.

2. Aerial photographs.--Contact U.S. Forest Service, BLM and SCS.

3. Division of Wildlife constructed lakes.--Good information is available on these from the regional offices, especially if they were built with Federal Aid funds or a special use permit was required.

4. Elevations.--These are usually included in the files of the construction agency and in State Engineer's office. Some elevations are also included on USGS 7½-minute quadrangles.

5. Miscellaneous local sources of information.--County Assessor, County Clerk and local abstract offices.

Form No. 2.--SHORELANDS OF MAJOR PUBLICLY OWNED RESERVOIRS IN _____ COUNTY [1/]

Water Code No.	Name of Reservoir	Administering Agency (ies)	Location	Extent of Shorelands [2/]

[1/] End product of Step No. 4, Shorelands Identification

[2/] One-quarter mile or 5 feet in elevation above high water line, whichever is greater.

Form No. 2.2. --POPULATION STATUS AND BIOLOGICAL FEATURE RATINGS FOR MAPPED WILDLIFE AREAS 1/

Page _____ of _____

County _____

Date prepared _____

Species _____

Approved by _____

Map Area Number	Size of Area (Sq. Miles)	Population Estimate	Animal Density	Biological Feature Type	Ratings			Comments
					Population Status	Biological Feature	Total	

1/ To be completed by inventory team as part of Steps 2 and 3, Terrestrial Wildlife. Habitat Identification.

Comments: Line items c and d should probably be deleted.

APPENDIX A

Form No. 3.--HABITAT FEATURES EVALUATION BY SEASONS OF USE [1/]

Species (or group of species) _____

Habitat Features	Critical Seasons [2/]			
	Spring	Summer	Fall	Winter
a. Production Areas				
b. Principal Feeding Areas				
c. Summer Range				
d. Winter Range				
e. Concentration Areas				
f. Shelter Areas				
g. Water and Mineral Resources				
h. Movement Corridors				
i. Buffer Zones				
j. Special Habitat Needs				

[1/] End product of Step No. 2, Terrestrial Wildlife Habitat Identification

[2/] Indicate dates if known or appropriate.

Comments: This is a good form. Sub-heading "square miles" should probably be inserted where shown in the body of the table in caps.

Form No. 4.--POPULATION STATUS BY AREA FOR SELECT SPECIES, EXPRESSED AS SQUARE MILES OF OCCUPIED RANGE 1/

County _____ Total Square Miles _____

Population Status	Numerical Rating	Species							
		SQUARE MILES							
Undetermined	1								
Peripheral	2								
Common	3								
Threatened	4								
Endangered	5								

1/ Supplementary information for Step No. 3, Terrestrial Wildlife Habitat Identification.

Comments: Definition of WCO should be given (Water Conservation Officer). Questionable whether WCO districts are short enough stream segments to relate to ecological minimum stream flow requirements.

APPENDIX A

Form No. 5.--IDENTIFICATION CODES FOR STREAMS [1/]

Stream	Water Code No.	County Code No.	WCO District Code No. [2/]

[1/] End product of Step 1, Aquatic Wildlife Habitat Identification

[2/] Key: _____

Comments: Definition of WCO should be given (Water Conservation Officer).

APPENDIX A

Form No. 6.--IDENTIFICATION CODES FOR LAKES AND RESERVOIRS [1/]

Lake or Reservoir	Water de No.	County Code No.	WCO District Code No. [2/]

[1/] End product of Step 1, Aquatic Wildlife Habitat Identification

[2/] Key: _____

Comments: This form is quite good in general concept but might be inappropriate for a large stream unless properly segmented. WCO should be defined. Items in caps are suggested as additions to body of form. How is water quality measured or expressed (line item 1)? How is legal access indicated? Should minimum stream ~~flow requirement~~ be stated?

APPENDIX A

Form No. 7.--SIGNIFICANT VALUE INDEX RATING FOR STREAMS 1/

Stream Code _____ County _____

Stream Name SECTION NUMBER WCO _____

Average Width _____ ft. Date _____

I	II	III	IV
Feature	Weight Factor	Rating 2/ (1 to 10)	Value Score 3/ (II x III = IV)
Quality of Water	9		
Pool-riffle Ratio	5		
Temperature of Water	1		
Clarity of Water	4		
Fish Food Supply	6		
Condition of Fish	8		
Legal Access	7		
Aesthetic Value	2		
Meanders	3		
Potential Significance	5		

V Total Value Score 3/

VI Significant Value Index 3/

VII Items of Special Significance: _____

VIII Location of Items in VI _____

1/ End product of Step No. 2, Aquatic Wildlife Habitat

2/ Rated by WCO

3/ Computed by Denver Office.

Comments: Should minimum stream flow requirement (expressed as quantity of water) be related to these bodies of water (maintenance of water depth or, alternatively, reduction of shoreline "flats" fluctuation)? WCO should be defined.

APPENDIX A

Form No. 8.--SIGNIFICANT VALUE INDEX RATING FOR LAKES AND RESERVOIRS [1/]

Lake Code _____ County _____

Lake Name _____ WCO _____

Surface Acres _____ Date _____

I	II	III	IV
Feature	Weight Factor	(Rating 1 to 10) [2/]	Value Score (II x III = IV) [3/]
Quality of Water	8		
Shoreline & Bottom Type	3		
Temperature of Water	1		
Clarity of Water	4		
Fish Food Supply	6		
Condition of Fish	8		
Legal Access	7		
Aesthetic Value	2		
Rough Fish Competition	5		
Potential Significance	5		

V Total Value Score [3/] _____

VI Significant Value Index [3/] _____

VII Items of Special Significance: _____

VIII Location of Items in VI _____

1/ End product of Step No. 2, Aquatic Wildlife Habitat

2/ Rated By WCO

3/ Computed by Denver Office.

Comments: Concept of this form is quite good.

APPENDIX A

Form No. 9.--SUMMARY OF AQUATIC WILDLIFE HABITAT IDENTIFICATION INFORMATION FOR STREAMS, _____ COUNTY [1]

Significant Value Index	Map (Water) Code No.	Name of Water [2]	Size [3]	Significant Values

1/ End product of Step No. 4, Aquatic Wildlife Habitat

2/ In alphabetical order within each index rating

3/ Acres per mile of stream.

Comments: Concept of this form is quite good,

APPENDIX A

Form No. 10.--SUMMARY OF AQUATIC WILDLIFE HABITAT IDENTIFICATION INFORMATION FOR LAKES AND RESERVOIRS, _____ County[1/]

Significant Value Index	Map (Water) Code No.	Name of Water [2/]	Size [3/]	Significant Values

1/ End product of Step No. 4, Aquatic Wildlife Habitat

2/ In alphabetical order within each index rating.

3/ Surface acres.

APPENDIX B

CHECK LIST OF COLORADO WILDLIFE

CHECK LIST OF COLORADO WILDLIFE

Prepared by

COLORADO DEPARTMENT OF NATURAL RESOURCES

DIVISION OF WILDLIFE

Revised October, 1974

CONTENTS

INTRODUCTION

It is the policy of the State of Colorado that the fish and wildlife and their environments are to be protected, preserved, enhanced and managed for the use, benefit and enjoyment of the people (62-1-2). Wildlife is defined in the Colorado Revised Statutes (62-1-3(10)0 to mean "wild vertebrates, mollusks, crustaceans and fish."

The group listings on the attached check list are in scientific order, starting with the most simple life forms and proceeding to the more advanced. Order of presentation within groups follows that in recognized publications on Colorado wildlife or, in the case of birds, the A.O.U. Revised (1973) Check List. Listings include 2 classes of mollusks, 11 classes of crustaceans, 85 species of fish, 14 species and subspecies of amphibians, 63 species and subspecies of reptiles, 424 species of birds, and 122 species of mammals.

This list was specifically designed to provide information for the implementation of H.B.1041, the Colorado Land Use Act, enacted on May 17, 1974. It is important that persons filling out this check list complete all the background information asked for and carefully follow the instructions provided.

INSTRUCTIONS

Include name of County and your last name at the top of each page. This will permit identification of your contribution in the event the pages of the check list become separated.

Species	Column 1 Overall Occurrence	Column 2 Seasonal Occurrence (Y, M, S, W, U)	Column 3 Population Status (e, t, c, p, u)	Column 4 Recommended for Select Species List

Column 1, Overall Occurrence.--Place a check mark here if the species or subspecies is present during all or any part of the year.

Column 2, Seasonal Occurrence.--Indicate seasonal occurrence of each species checked in Column 1 by using capital letters:

- Y = Year around resident
- M = Migrant, only seen during migratory periods
- S = Summer resident
- W = Winter resident
- U = Unknown

Column 3, Population Status.--Indicate the population status of each species checked in Column 1 by using lower case letters. Please note that population status refers to the local situation and not to the status of the species on any official state or federal list of threatened or endangered species. For example, prairie chickens, which are on the state's endangered list, may be locally common in portions of some eastern Colorado counties; and the Colorado squawfish, which is on the federal endangered list, may be locally common in Moffat and Mesa Counties.

The following lower case letters and definitions should be used to indicate status in Column 3:

e = Endangered: A wildlife population is endangered when its prospects for survival and reproduction within an area are in jeopardy, or are likely to become so within the forseenable future. Any substantial reduction of displacement of a wildlife population resulting from a change in land use could cause an otherwise normal population to become endangered in status.

t = Threatened: A wildlife population is rated threatened when the individuals constituting the population exist in such small numbers or are so restricted in their general distribution htat they may may become endangered.

c = Common: A population is considered common when its level is compatible with the existing habitat and is currently secure because its essential habitat is not threatened by environmental degradation.

p = Peripheral: A peripheral population is one which, because of being on the perimeter of its normal geographical range, occurs in low numbers. Although not endangered or threatened in its population distribution as a whole, peripheral populations are subject to becoming endangered by telatively minor changes in their habitats. Such populations are seldom of substantial state interest unless habitat enchancement measures will result in their status being upgraded.

u = Undetermined or unknown: Species is known to be present but status hasn't been determined.

Column 4, Recommend for Select Species List.--Species recommended here are candidate species for a select list which will be determined by an established review and selection procedure. Detailed information will be developed for each species on the select list for the purpose of identifying significant wildlife habitats to be protected under the provisions of H.B.1041.

In addition to indicating which species you recommend for inclusion on the select list, you should rank these numerically, starting with Number 1 for the species you consider most important, and continuing on to those you consider less important.

The following criteria should be considered in determining candidate species for the select list:

(1) General distribution of the species should be well enough known that it can be mapped.

(2) Biological features of the species' local distribution should be known or such information should be readily obtainable. These biological features, which may not apply to all species and may be

more important for some than others, include the following: production areas, principal feeding areas, summer ranges, winter ranges, concentration areas, shelter areas, water and mineral requirements, movement corridors, buffer zones and special habitat needs.

(3) Species should have economical, social, educational or ecological values.

(4) Species designated as an official state or federal animal, i.e., bighorn sheep, lark bunting and bald eagle, should be included.

(5) Species which are unique in their Colorado distribution, i.e., found in only one or a few areas, should be included.

(6) Include species on official federal or state list of endangered species. To assist you in this regard, a list of endangered species is appended to the check list.

Preliminary testing has indicated that the assignment of numerical priorities in Column 4 presents some mechanical problems, mainly because of the number of pages involved. To overcome this problem, it is suggested that you place a check mark opposite the species you want to recommend as candidate species, then list these on a separate piece of paper, using the same order that they occur on the check list. Once you have all your candidate species on one or two pieces of paper, numerical priority numbers can be readily assigned. These should then be entered in Column 4.

Once your check list information and recommendations for the select species list are complete as possible, and before the established deadline, mail or otherwise deliver the list to the Colorado Division of Wildlife Conservation Officer in the county for which the check list is completed. For your convenience, addressed envelopes are available.

PERSONAL BACKGROUND INFORMATION

County: _____

Name of Person Completing Form: _____

Mailing Address: _____

_____

Phone: Home: _____ Business: _____

Professional Qualifications in Wildlife Biology: _____

_____

_____

Other Qualifications: _____

_____

_____

Are you a resident of the County for which this check list is being completed? ____

How many years have you lived in the County? _____.

If you are not a resident of the County, briefly describe your familiarity with the County and its wildlife resources. _____

_____

_____

Does the information contained on this check list represent your personal observations? _____. If so, would you be willing to testify at a public hearing as to the authenticity of your information? _____.

If this checklist is a composite list prepared from the observations of several individuals affiliated with a club or agency, name the club or agency. _____

_____

Please attach a list of names and mailing addresses of contributors.

If your knowledge of wildlife is limited to a portion of the County, briefly describe that portion. _____

_____

Date: _____

LIST OF ENDANGERED AND THREATENED SPECIES FOR COLORADO [1/]

ENDANGERED FISH

Colorado River Squawfish (F) (S)
Greenback Trout (F)
Humpback Chub (F) (S)
Humpback Sucker (S)
Bonytail Chub (S)

THREATENED FISH

Arkansas River Speckled Chub (S)
Arkansas Darter (S)
Central Johnny Darter (S)
Colorado Cutthroat (S)
Plains Orangethroat Darter (S)
Rio Grande Cutthroat (S)

ENDANGERED BIRDS

White Pelican (S)
Brown Pelican (F)
Mexican Duck (F)
Peregrine Falcon (F) (S)
Greater Prairie Chicken (S)
Lesser Prairie Chicken (S)
Whooping Crane (F) (S)
Sandhill Crane, Greater (S)
Eskimo Curlew (F)

ENDANGERED MAMMALS

Gray Wolf (S)
Grizzly Bear (S)
Black Footed Ferret (F) (S)
Wolverine (S)
River Otter (S)

[1/] Those species on Federal list have an (F) suffix and those on State list have an (S) suffix.

APPENDIX V

Form 3109–3
(June 1971)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

STIPULATION FOR LANDS UNDER JURISDICTION OF DEPARTMENT OF AGRICULTURE*

The lands embraced in this lease or permit being under the jurisdiction of the Secretary of Agriculture, the lessee or permittee hereby agrees:

(1) To conduct all operations authorized by this lease or permit with due regard for good land management, not to cut or destroy timber without first obtaining permission from the authorized representative of the Secretary of Agriculture, and to pay for all such timber cut or destroyed at the rates prescribed by such representative; to avoid unnecessary damage to improvements, timber, crops, or other cover; unless otherwise authorized by the Secretary of Agriculture, not to drill any well, carry on operations, make excavations, construct tunnels, drill, or otherwise disturb the surface of the lands within 200 feet of any building standing on the lands and whenever required, in writing, by the authorized representative of the Secretary of Agriculture to fence or fill all sump holes, ditches, and other excavations, remove or cover all debris, and so far as reasonably possible, restore the surface of the lands to their former condition, including the removal of structures as and if required, and when required by such representative to bury all pipelines below plow depth.

(2) To do all in his power to prevent and suppress forest, brush, or grass fires on the lands and in their vicinity, and to require his employees, contractors, subcontractors, and employees of contractors or subcontractors to do likewise. Unless prevented by circumstances over which he has no control, the lessee or permittee shall place his employees, contractors, subcontractors, and employees of contractors and subcontractors employed on the lands at the disposal of any authorized officer of the Department of Agriculture for the purpose of fighting forest, brush, or grass fires on or originating on the lands or on adjacent areas or caused by the negligence of the lessee or permittee or his employees, contractors, subcontractors and employees of contractors and subcontractors, with the understanding that payment for such services shall be made at rates to be determined by the authorized representative of the Secretary of Agriculture, which rates shall not be less than the current rates of pay prevailing in the vicinity for services of a similar character: *Provided,* that if the lessee or permittee, his employees, contractors, subcontractors, or employees of contractors or subcontractors, caused or could have prevented the origin or spread of said fire or fires, no payment shall be made for services so rendered.

During periods of serious fire danger to forest, brush, or grass, as may be specified by the authorized representative of the Secretary of Agriculture, the lessee or permittee shall prohibit smoking and the building of camp and lunch fires by his employees, contractors, subcontractors, and employees of contractors or subcontractors within the area involved except at established camps, and shall enforce this prohibition by all means within his power: *Provided,* that the authorized representative of the Secretary of Agriculture may designate safe places where, after all inflammable material has been cleared away, campfires may be built for the purpose of heating lunches and where, at the option of the lessee or permittee, smoking may be permitted.

The lessee or permittee shall not burn rubbish, trash, or other inflammable materials *except* with the consent of the authorized representative of the Secretary of Agriculture and shall not use explosives in such a manner as to scatter inflammable materials on the surface of the lands during the forest, brush, or grass fire season, *except* as authorized to do so or on areas approved by such representative.

The lessee or permittee shall build or construct such fire lines or do such clearing on the lands as the authorized representative of the Secretary of Agriculture decides is essential for forest, brush, and grass fire prevention which is or may be necessitated by the

* This form of stipulation may be used in connection with leases and permits issued under the Acts of February 25, 1920, as amended (30 U.S.C. 181 *et seq.*); August 7, 1947 (30 U.S.C. 351 *et seq.*); February 7, 1927, as amended (30 U.S.C. 281 *et seq.*); April 17, 1926, as amended (30 U.S.C. 271 *et seq.*); June 28, 1944 (58 Stat. 483–485); September 1, 1949 (30 U.S.C. 192c); June 30, 1950 (16 U.S.C. 508b); or under the authority of any of the Acts cited in Section 402 of the President's Reorganization Plan No. 3 of 1946 (5 U.S.C. 133y–16, Note).

exercise of the privileges authorized by this lease or permit, and shall maintain such fire tools at his headquarters or at the appropriate location on the lands as are deemed necessary by such representative.

(3) In the location, design, construction, and maintenance of all authorized works, buildings, plants, waterways, roads, telegraph or telephone lines, pipelines, reservoirs, tanks, pumping stations, or other structures or clearance, the lessee or permittee shall do all things reasonably necessary to prevent or reduce to the fullest extent scarring and erosion of the lands, pollution of the water resources and any damage to the watershed. Where construction, operation, or maintenance of any of the facilities on or connected with this lease or permit causes damage to the watershed or pollution of the water resources, the lessee or permittee agrees to repair such damage and to take such corrective measures to prevent further pollution or damage to the watershed as are deemed necessary by the authorized representative of the Secretary of Agriculture.

(4) If in the opinion of the authorized representative of the Secretary of Agriculture, the lands are valuable for watershed protection, the lessee or permittee shall provide for control of surface runoff and return the affected area to as productive condition as practicable.

(5) To pay the lessor or permitter or his tenant or the surface owner or his tenant, as the case may be, for any and all damage to or destruction of property caused by the lessee's or permittee's operations hereunder; to save and hold the lessor or permitter or the surface owner or their tenants harmless from all damage or claims for damage to persons or property resulting from the lessee's or permittee's operations under this lease or permit.

(6) To recognize existing uses and commitments, in the form of Department of Agriculture grazing, timber cutting, and special use permits, water developments, ditch, road, trail, pipeline, telephone line, and fence rights-of-way and other similar improvements, and to conduct his operations so as to interfere as little as possible with the rights and privileges granted by these permits or with other existing uses.

(7) To install and maintain cattle guards to prevent the passage of livestock in any openings made in fences by the lessee or permittee or his contractors to provide access to the lands covered by this lease or permit for automotive and other equipment.

(8) If lessee or permittee shall construct any camp on the lands, such camp shall be located at a place approved by the authorized representative of the Secretary of Agriculture, and such representative shall have authority to require that such camp be kept in a neat and sanitary condition.

(9) To comply with all federally-approved rules and regulations of the Secretary of Health, Education, and Welfare governing the emission of pollutants into the air from activities which are embraced in this lease or permit.

(10) To comply with all the rules and regulations of the Secretary of Agriculture governing the national forests or other lands under his jurisdiction which are embraced in this lease or permit.

(11) Unless otherwise authorized, prior to the beginning of operations to appoint and maintain at all times during the term of this lease or permit a local agent upon whom may be served written orders or notices respecting matters contained in this stipulation, and to inform the authorized representative of the Secretary of Agriculture, in writing, of the name and address of such agent. If a substitute agent is appointed, the lessee or permittee shall immediately so inform the said representative.

(12) To address all matters relating to this stipulation to

at

who is the authorized representative of the Secretary of Agriculture, or to such other representative as may from time to time, be designated, provided that such designation shall be in writing and be delivered to the lessee or permittee or his agent.

(Signature of Lessee)

GPO 850-292

Forest Service Supplement B to
Form 3109-3

Serial No._____

CLASSIFIED AREA STIPULATION
(36 CFR 251 & 294)

The use of the lands within the external boundaries of the _____ _____ Classified Area as described below, for the purpose of this lease will be restricted to the following unless otherwise specifically agreed to by the Forest Service in the Lessee Surface Management Operation Plan:

(a) To conduct prospecting and exploratory activities upon said lands for the purpose of locating and determining the existence of possible oil and gas bearing formations and/or geologic structures beneath said lands by the use of such instruments and non-motorized equipment as may be carried by hand or on horseback. No explosives shall be used nor shall any wheeled, mechanized or motorized vehicles or equipment be used or transported upon the surface of said lands for such purposes.

(b) The lessee shall be authorized to drill for, produce, and remove oil and gas from said lands by methods which will avoid invasion or disturbance of the surface.

(c) This stipulation is in effect for the following described lands:

_____
Lessee

NOTE: The Applicant is encouraged to contact the District Ranger for further information regarding the restrictive nature of this stipulation.

O & G

Revised 5/76

Forest Service Supplement C to
Form 3109-3

Serial No._____

NEW STUDY AREA STIPULATION

It is understood that the following described lands embraced in this lease have been selected as new study areas and will be studied for wilderness:

Depending on the results of the study, the areas in question may be determined as suitable or not suitable for wilderness. Those areas determined as suitable for wilderness may ultimately be classified as wilderness. The use of the above described lands for the purpose of this lease will be restricted to the following unless otherwise specifically agreed to by the Forest Service in the Lessee Surface Management Operation Plan:

(a) To conduct prospecting and exploratory activities upon said lands for the purpose of locating and determining the existence of possible oil and gas bearing formations and/or geologic structures beneath said lands by the use of such instruments and non-motorized equipment as may be carried by hand or on horseback. No explosives shall be used nor shall any wheeled, mechanized or motorized vehicles or equipment be used or transported upon the surface of said lands for such purposes.

(b) The lessee shall be authorized to drill for, produce, and remove oil and gas from said lands by methods which will avoid invasion or disturbance of the surface.

(c) This stipulation shall become inoperative in the event the area is determined not suitable for wilderness.

(d) In the event the area is classified as wilderness, this lease shall become subject to the provisions of the Act of September 3, 1964 (78 Stat. 893), Acts amendatory or supplemental thereto, and Forest Service regulations and policies pertaining thereto.

_____
Lessee

NOTE: The Applicant is encouraged to contact the District Ranger for further information regarding the restrictive nature of this stipulation.

O & G

Revised 5/76

Forest Service Supplement D to
Form 3109-3

Serial No. _____

ROADLESS AREA STIPULATION

It is understood that the following described lands embraced in this lease have been inventoried as roadless areas and must be evaluated for their wilderness potential:

Depending on the results of the evaluation, the areas in question may be determined as suitable for further wilderness study, or not suitable for wilderness. Those areas determined as suitable for wilderness may ultimately be classified as wilderness.

1. Existing roads, if any, may be used for temporary access in a non-destructive manner, but may not be reconstructed, improved, or graded.

2. Where temporary access is needed to an area not served by an existing road, methods of access not resulting in erosion, scars, or environmental damage shall be used.

3. Where long-term access or development is desired, or where the method to be used will possibly cause environmental damage, an application for such access or development shall be filed with the Supervisor of the National Forest involved. Such application shall include the nature of the proposed access or development, any measures proposed to minimize the environmental impact, including proposed restoration measures, and a map of the location and the access or development. The Forest Supervisor will coordinate the proposal with the local office of the United States Geological Survey, and based upon such coordination and agreement reached with the United States Geological Survey, will approve or disapprove the proposal.

4. This stipulation shall become inoperative in the event the area is determined as not suitable for wilderness.

5. If the area, or part of it, is determined suitable for wilderness study, this clause shall remain in full force and effect until the area is either classified for wilderness or is formally rejected for such classification. If the area is classified as wilderness, this lease shall become subject to the provisions of the Act of September 3, 1964 (78 Stat. 893), Acts amendatory or supplemental thereto, and Forest Service regulations and policies pertaining thereto.

_____
Lessee

NOTE: The applicant is encouraged to contact the District Ranger for further information regarding the restrictive nature of this stipulation.

Revised: 5/76

Forest Service Supplement E to
Form 3109-3

Serial No. _____

LIMITED SURFACE USE STIPULATION

The lessee is given notice that all or portions of the lease area contain special values, are needed for special purposes, and require special attention to prevent damage to surface resources. Any surface use or occupancy that might be allowed within such areas will be limited. It will be authorized by the Forest Service only if the lessee or operator demonstrates that surface use or occupancy is essential to his operations, and if he submits special plans for operations affecting these areas which provide for such modifications as are satisfactory to the Forest Service for protection of these special values and existing or planned uses. After the Forest Service has been advised of the proposed surface use on the leased lands, and on request of the lessee or operator, the Forest Service will furnish further data on such areas, which now include but are not limited to:

_____
Lessee

NOTE: The Applicant is encouraged to contact the District Ranger for further information regarding the restrictive nature of this stipulation.

Forest Service Supplement F to
Form 3109-3

Serial No._____

ENCLAVE AREA STIPULATION

Additional provisions governing invasion and/or disturbance, protection and reclamation of the surface resources within the following described lands will be required and included in the Lessee Surface Management Operation Plan:

_____
Lessee

SUPPLEMENTAL STIPULATION
STIPULATION FOR LANDS UNDER JURISDICTION OF DEPARTMENT OF AGRICULTURE

Forest Service Supplement H to
Form 3109-3

Notwithstanding any provision of this lease to the contrary, any clearing, use or other operation on the leased lands that will disturb the surface thereof or otherwise affect the environment, hereinafter called, "surface disturbing operation," conducted by the lessee shall be subject, as set forth in this stipulation, to prior approval of such operation by the United States Geological Survey in consultation with the Forest Service, U.S. Department of Agriculture, and to such reasonable conditions, not inconsistent for which this permit is issued, as the Geological Survey may require to protect the surface of the permitted lands and the environment.

A. Applicable to Exploration Activities

1. At least four weeks before beginning any exploration work, including access and work road location and construction, the lessee shall prepare a "Lessee Exploration Plan" with the District Ranger, _____. The plan shall be prepared in triplicate, including maps, for approval by the Forest Supervisor. Such approval will be conditioned on reasonable requirements needed to prevent soil erosion, water pollution, and unnecessary damages to the surface vegetation and other resources of the United States and to provide for the restoration of the land surface and vegetation. The plan shall contain all such provisions as the Forest Service may deem necessary to maintain proper management of the lands and resources within the prospecting areas.

   Where appropriate, depending upon the location and type of operation, the Forest Supervisor may require the plan to contain, at a minimum, the following items:

   a. The location, construction specifications, maintenance program, and estimated use by the lessee, his employees, and agents, of all access and work roads.

   b. The exact location and extent of any and all areas to be occupied during the operations.

   c. The methods to be used in the operations, including disposal of waste material.

   d. The size and type of equipment to be used in the operation.

   e. The capacity, size character, standards of construction and location of all structures and facilities to be constructed.

   f. Typical profiles of cuts and fills of all areas to be graded for the installation of structures and facilities.

   g. The location and size of areas upon which vegetation will be destroyed and/or soil laid bare and the steps which will be taken to prevent and control soil erosion thereon, including but not limited to the proposed program for rehabilitation and revegetation of these disturbed lands both during and upon cessation of operations.

   h. The steps which will be taken to prevent water pollution.

   i. The character, amount, and time of use of explosives or fire, including safety precautions which will be taken during their use.

   j. Forest user, permitted livestock, and wildlife protection.

   If later explorations require departure from or additions to the approved plan, these revisions or amendments, together with justification statement for proposed revisions, will be submitted to the District Ranger for approval by the Forest Supervisor.

   Any and all operations conducted in advance of approval of an original, revised, or amended lessee exploration plan, or which are not in accord with an approved plan constitute a violation of the terms of this lease and the Forest Service reserves the right to close down operations until such corrective action, as is deemed necessary, is taken by the lessee.

   Exploration will be restricted to core drilling unless specifically agreed to in the lessee exploration plan.

   All travel including drilling activities will be restricted to dry weather, except as may be authorized in writing by the District Ranger, provided, however, that this restriction does not apply to travel on gravelled or paved all weather roads.

   No trail or road construction, leveling of drilling sites or other excavations, except those specifically agreed to in the lessee exploration plan will be authorized.

   Metal mud tanks will be required at all drilling sites located on "sensitive soils." The delineation of these special treatment areas will be made by the District Ranger.

2. No occupancy of the surface of the following areas is authorized by this lease. The lessee is, however, authorized to employ directional drilling to explore the mineral resources under these areas provided that such drilling or other works will not disturb the surface areas or otherwise interfere with their use by the Forest Service. It is understood and agreed that the use of these areas for National Forest purposes is superior to any other use. The excluded areas are:

   a. Within 500 feet on either side of the centerline of any and all roads and/or highways within the lease area.

   b. Within 200 feet on either side of the centerline of any and all trails within the lease area.

   c. Within 500 feet of the normal highwater line of any and all lakes, ponds, reservoirs, and live streams located within the lease area.

   d. Within 400 feet of any and all springs within the lease area.

   e. Within 400 feet of any improvements either owned, permitted, leased, or otherwise authorized by the Forest Service.

   The distance in subparagraphs a, b, c, d, and e immediately above may be reduced when specifically agreed to in the lessee exploration plan, see paragraph 1.

3. To guarantee the successful rehabilitation and revegetation of abandoned exploration sites, roads, and other disturbed areas, as provided for in the "Lessee Exploration Plan" paragraph 1 above, the lessee will furnish the Forest Service a surety bond in the amount of _____prior to undertaking any work on the lease area. Provided that, in the event the work is conducted in separate phases, each phase will be covered by a separate bond in the minimum amount of _____before the start of any work on each phase. In lieu of surety bond, the lessee may deposit into a Federal Depository cash, through the Unit Collection Officer, _____National Forest, or negotiable securities through the Regional Fiscal Agent, U.S. Forest Service, 11177 W. 8th Avenue, P. O. Box 25127, Lakewood, Colorado 80225 in the amounts stated above or each separately bonded phase area. As soon as the lease area has been successfully rehabilitated and revegetated and approved in writing by the Forest Supervisor, surety will be notified, or cash deposits returned without interest, or securities returned without interst. The lessee agrees that all monies or deposits in lieu thereof, deposited under this authority may be retained by the United States to cover the cost of any said restoration and rehabilitation rendered necessary by failure of the lessee to fulfill all and singular the requirements assumed hereunder without prejudice whatever to any other rights and remedies of the United States.

B. Applicable to Production (operation) Activities

1. The lessee, before the start of any mining operations, agrees to enter into such additional specific stipulations with the Forest Service covering the lessee's mining operations as are deemed necessary and appropriate depending upon the mining methods to be used and current mining and restoration technology, to meet the following land management principles:

   a. Maintain and protect the areas which will be either directly or indirectly affected by the lessee's mining operations to minimize the effect on grazing capabilities.

   b. Install structures and facilities and revegetate disturbed areas to protect the soil from excessive erosion and return the land to a usable condition.

   c. Take all measures reasonably necessary to minimize the pollution and contamination of the surface and subsurface water sources.

   d. Protect, insofar as is practicable, improvements owned or authorized by the Forest Service, and restore or replace these said improvements in event they must be destroyed or disturbed by the lessee's mining operations.

   Such stipulations will be developed jointly by the lessee; representatives of the Branch of Mining Operations, Conservation Division, U.S. Geological Survey; and the Supervisor, _____, Forest Service.

2. The lessee shall prepare in triplicate and submit an annual operating plan to the Forest Supervisor which will include as a minimum:

   a. The mining operating areas and the methods of operation planned for each area.

   b. The areas to be treated and details of the rehabilitation and revegetation measures to be stipulated requirements of the Forest Service.

   c. The location and construction specifications of all roads necessary for the mining operation during the planning year.

   d. The steps to be taken to minimize water pollution and soil erosion.

e. The correlation of the mining operations with the Forest Service's use and management of the lands not included in that year's operating plan.

3. The lessee shall submit to the Forest Supervisor an annual progress map and report of mining, restoration, and revegetation operations.

4. The lessee shall furnish performance bonds as required by the Forest Supervisor to guarantee fulfillment of the stipulations, entered under (1) above, and the operating plans, prepared under (2) above.

5. The Forest Service reserves the right to amend, alter, or otherwise change during the life of the lease, any and all stipulations necessary to meet the land management principles outlined in paragraph 1 above provided that before any such amendments, alterations, and other changes are made, the lessee shall be invited to make any comments as he may deem necessary and, provided further, that no such amendments, alterations, and changes in these stipulations shall be made unless agreed to in writing by the lessee and the Forest Service.

6. The Forest Service reserves the right to manage and use all lands administered by it which are embraced within the lease for such purposes as they may deem desirable, provided, that this use and management shall not interfere or conflict with the current mining operations of the lessee.

_____

Signature

Colo. (Other minerals)

BIBLIOGRAPHIC DATA SHEET	1. Report No. FWS/OBS-77/04	2.	3. Recipient's Accession No.

4. Title and Subtitle

Energy, Public Choices and Environmental Data Needs

5. Report Date: March 1977

6.

7. Author(s) Frank M. Graves, Hermann P. Bretsch, Fred A. Glover, Constance A. Miller and Michael E. Berger

8. Performing Organization Rept. No.

9. Performing Organization Name and Address

Institute of Public Administration
1717 Massachusetts Avenue, N.W.
Washington, D.C. 20036

National Wildlife Federation
1412 Sixteenth St., N.W.
Washington, D.C. 20036

10. Project/Task/Work Unit No. WELUT No. 029-76

11. Contract/Grant No. 14-16-0008-2103

12. Sponsoring Organization Name and Address

Western Energy and Land Use Team
U.S. Fish & Wildlife Service
301 South Howes Street
Fort Collins, Colorado 80521

13. Type of Report & Period Covered: Final Report

14.

15. Supplementary Notes

16. Abstracts

The report describes the energy-related decision processes of the Bureau of Land Management, Geological Survey, Forest Service, Bureau of Reclamation, Energy Research and Development Administration, Water Resources Council, and the States of Montana, New Mexico, Utah, Colorado and Wyoming. On the basis of formal decision processes and interviews with numerous agency personnel recommendations are made whereby the Fish and Wildlife Service can more effectively communicate wildlife information to decision makers.

17. Key Words and Document Analysis. 17a. Descriptors

decision processes
planning
fish
wildlife
energy
coal
water resources
land management
decision making
information transfer

17b. Identifiers/Open-Ended Terms

Colorado
Montana
New Mexico
Utah
Wyoming
Fish and Wildlife Service
Bureau of Land Management
Forest Service
Bureau of Reclamation
Energy Research and Development Administration
Water Resources Council

17c. COSATI Field/Group

18. Availability Statement: Release Unlimited

19. Security Class (This Report) UNCLASSIFIED

20. Security Class (This Page) UNCLASSIFIED

21. No. of Pages 126

22. Price