

**POLICY FOR USE OF
BLODGETT FOREST RESEARCH STATION**

Updated October 1, 2012
GENERAL POLICES AND PROCEDURES

A. Forest Administration

Blodgett Forest Research Station (BFRS) is a property of the University of California, Berkeley, administered by the Center for Forestry (CFF). BFRS is part of a network of forest research stations (i.e. the "Berkeley Forests"), which are also administered by the Center for Forestry. Each station has its own Policy for Use document that incorporates the specific objectives and conditions of that particular forest. The original 2,600 acres of BFRS were a gift from the Michigan-California Lumber Company (1933) to the School of Forestry. Through acquisitions, land exchanges and donations over time, the current size of the forest has grown to 4,270 acres. Two Directors for the Center for Forestry are appointed by the Dean, College of Natural Resources. They have administrative responsibility and authority to develop and administer forest programs and policies, approve forest research, supervise the BFRS staff, and recommend an annual forest budget to the Dean. One Director is a faculty member active in research on Center properties. One Director, who may be a faculty, a cooperative extension specialist or a cooperative extension advisor, provides oversight to the Research Stations Manager who has administrative responsibility for a network of Berkeley Forests in the Sierra Nevada. A resident Forest Manager at BFRS (who may also be the Research Stations Manager) supervises all forest employees, implements forest projects and policies, facilitates research, and maintains the Forest database and physical plant. The Directors and Forest Manager jointly develop an annual preliminary budget for review by the Associate Dean for Forestry or Dean's Office. The Center Advisory Committee is appointed by the Directors to regularly monitor, review, and recommend additions and changes in programs and policies for approval by the Directors. On a bi-annual cycle beginning in October 2012, the Faculty Research Oversight Committee (members with active or proposed research projects in the Berkeley research forests) provide advice and give consent to the Directors for this policy statement.

B. General Objectives of Forest Use

1. The primary objective is to provide a location for research in forestry and related wildland resources by graduate students, faculty from the College of Natural Resources, and other interested University of California researchers and non-UC cooperators.
2. The secondary objective is to utilize, where feasible, forest research activities and facilities to demonstrate forest management practice and transfer knowledge and inform policy via graduate and undergraduate instruction, extension, and professional and public education programs.

C. Resource Protection

1. It is the intent of the Center to manage Blodgett Forest such that basic air, water and soil resources are conserved. In developing the mosaic of vegetation described under land allocation below, the best available management practices will be utilized to maintain and, where feasible, improve the capability to produce:
 - a. Beneficial uses of water;
 - b. Wood products;
 - c. Wildlife habitat;
 - d. Visual quality;
 - e. Forage for livestock; and
 - f. Recreation potential.

2. Particular attention will be directed toward Watercourse and Lake Protection Zones in order to maintain water quality and protect riparian vegetation. Snags and downed woody fuel will be manipulated throughout the forest to provide specific wildlife habitat and reduce potential wildfire damage. Historic and pre-historic cultural sites will be catalogued and appropriately protected.
3. The Forest Manager will monitor water, soil, vegetation, atmospheric, stream, visual, fuel, wildlife, and archaeological resources as well as pest conditions, and conduct rehabilitation and modify management activities if necessary. The Forest Manager will review proposed research projects, seeking peer review from subject experts where appropriate and recommend measures to mitigate potential significant adverse environmental effects.
4. The rules and intent of the California Forest Practices Act are met or exceeded in all management and research activities on the Forest. The Center Advisory Committee must review research needing an exemption.

D. Research

1. The primary research mission of BFRS is providing knowledge to improve management of young growth mixed conifer-oak forests for commercial timber, watershed, wildlife, air quality, soil, forage, recreation and other forest values.
2. Research on the Forest is to be coordinated by the Center Directors and the Forest Manager.
3. All new project proposals are to be submitted to the Directors and Forest Manager for subsequent review by a committee of researchers selected by the Directors. Final approval is given by the Directors and Forest Manager.
4. All projects are expected to contribute to costs of maintenance of the Forest and its facilities.
5. All graduate and undergraduate research shall be sponsored by faculty members and will be subject to review and approval in a similar manner to that for faculty research.
6. All researchers are expected to consult the Forest Manager and obtain approval for the exact field location before commencing fieldwork.
7. It is the responsibility of each project leader to select field measurement sites that are set back from road and compartment boundaries sufficiently to prevent planned maintenance and management of adjacent areas from interfering with their research.
8. It is the responsibility of the project leader to disclose in the research proposal all animal, insect, vegetation, and site manipulation that will be required. The Forest Manager will coordinate all such activities. Cost of all activities will be borne by the project unless specifically approved otherwise by the Directors.
9. Research projects that have not had published reports, nor research measurements taken, nor written abstracts for the Blodgett Research Workshop, and submitted to the Directors within the past five years shall be deemed abandoned. The Center Directors shall decide the most appropriate use of abandoned resources.
10. A bi-annual Research Workshop will be held at Blodgett Forest in the winter. All research project Principal Investigators are strongly encouraged to participate and facilitate the participation of cooperators and affiliated students. As a condition of project approval, each Center for Forestry project Principal Investigator must agree to submit an annual research abstract in December for each approved project.

E. Physical Plant and Equipment

1. All permanent structures or equipment are owned by the UC Regents and under the control of the Center.
2. All buildings on the Forest receive the same level of care, maintenance and repair for safety, liability, economic and aesthetic reasons.
3. While arrangements for extended part- or full-year use of a facility may be made, when such space is otherwise available the Forest may schedule the facility for use by others.
4. In recognition of the fragile nature of roads and the cost of road maintenance, those parts of the Blodgett road system other than designated wet season use roads, shall not be used by highway legal vehicles during the wet season. The Forest Manager will designate times when portions of the road system may NOT be used. Charges may be made where use damages road surfaces.
5. Pets (Dogs, Cats, etc.)
Pets are not allowed on any part of Blodgett Forest except as follows:
 - a. Pets are never allowed inside common-use buildings and University-owned vehicles or on field trips.
 - b. Faculty and full-year resident Blodgett staff may keep pets only when all these conditions are met:
 - (1) The owners occupy sole use housing.
 - (2) Pets stay within the building, or
Pets stay inside private vehicles, or
Pets are on leash, or
Pets are close at owner's side and under direct verbal command.
 - (3) Owners have the express permission of the Forest Manager to keep pets.
 - (4) Owners immediately dispose of all pet scat.
 - (5) Owners accept financial responsibility for all damages and commercial cleaning of facilities immediately after use.

II. FACILITIES AND FOREST USE, SCHEDULING AND PRIORITIES

A. General Priorities for Forest Use

1. Programmatic Priorities
 - a. Research
 - b. Teaching
 - c. Outreach and demonstration based on information developed at BFRS.
 - d. Conference use by groups with interests in wildland resource management
 - e. Conference use by other groups
2. User Priorities
 - a. Faculty (ladder rank and Cooperative Extension), College of Natural Resources
 - b. Graduate students from College of Natural Resources.
 - c. Faculty, of other University of California colleges and campuses.
 - d. Graduate students from other University of California colleges and campuses.
 - e. Students of the Berkeley campus and other University of California colleges
 - f. Other users with substantive interests in wildland resource management.

3. Use of all facilities, residence space, and equipment is scheduled by the Forest Manager using these priorities so as to maximize their efficient use while satisfying user needs.
4. A set of "Operational Guidelines for Blodgett Forest Research Station" (revised annually) (available from the Forest Manager) describes in detail administrative rules developed from this policy statement. Each Blodgett visitor and resident is expected to abide by these guidelines.
5. A series of "Blodgett Forest Notes" are irregularly distributed by the Forest Manager to all Blodgett users. Each Blodgett visitor and resident is expected to abide by these Notes.

B. Research

1. The summer field season for priority research use of the forest is May 15th to the end of August.
2. All requests for summer housing in connection with approved research projects shall be submitted to the Forest Manager prior to April 1 for each field season. Requests after that date will be considered in order of submission and availability of space.
3. Requests for housing in connection with approved research projects outside of the summer field season will be scheduled by the Forest Manager as they are received, normally not to exceed one month in advance.

C. Conferences

1. Conferences requiring the use of Blodgett housing facilities will not normally be scheduled during the summer field season.
2. Conferences will normally be scheduled at least one month in advance of confirming the conference.
3. Conferences will not normally be scheduled on weekends during September, October, April, and May, so that facilities will be available for instructional use.
4. Overnight use by conferences will be limited in size such that at least one residence is available for research use.
5. Conferences scheduled in compliance with BFRS policy will not be "bumped" by higher priority users.

D. Instruction

1. Teaching use shall be conducted so as not to compete with research for facilities nor interfere with approved research and management activities on the Forest.
2. Requests for the priority use of Blodgett facilities, equipment and road system for teaching purposes must be made to and approved by the Forest Manager. Requests must be submitted by the end of the first week of the semester in which use is to take place. Otherwise use will be decided on a first come, first scheduled basis. The general itinerary and route to be traveled on the forest should be reported.
3. The following priorities will be observed in approving requests for teaching use of facilities:
 - a. Graduate-level classes from Berkeley, College of Natural Resources.
 - b. Upper division classes from Berkeley, College of Natural Resources, Environmental Science, Policy and Management.
 - c. Other wildland resource related courses:
 - (1) From University of California, Berkeley

- (2) From University of California, Davis
- (3) Other University of California groups
- (4) Agency, school, youth and civic groups.

- 4. Classes or groups must be supervised and accompanied by regular University faculty, staff, or graduate students having an intimate knowledge of the Forest.
- 5. Overnight use by classes will be limited in size such that at least one residence is available for research use.
- 6. Classes scheduled in conformance with BFRS policy will not be "bumped" by higher priority users.

III. LAND USE ALLOCATION

The land organization for Blodgett Forest is driven by four major objectives:

- 1. To provide a predictable and wide variety of forest stand structures, composition, ages, and vegetation conditions, including reserve areas, to meet the current and potential needs of researchers and instructors.
- 2. To develop, on one site, a long term comparison of the major silvicultural and management systems, including both even-aged and uneven-aged systems, likely to be applied to Sierra Nevada mixed conifer-oak forests together with reserve stands containing comparable species, size, and age vegetation.
- 3. To manage logical land units in an operationally feasible fashion that can be reproduced directly by small private landowners and, with a minimum of extrapolation, on industrial, state and federal forests.
- 4. To maintain a business plan that provides stable resources sufficient to:
 - a. Protect the various forest resources from catastrophic loss;
 - b. Provide and maintain the administration, facilities and access systems required to support a wide variety of research;
 - c. Adequately implement forest management plans.

A. Ecological Reserves:

- 1. Reserves will have no management activity besides fire suppression.
- 2. The purpose of reserves are:
 - a. To provide older, maturing, unmanipulated areas to study wildlife, insects, disease, plant development and succession in plant communities and habitats different than the more intensively managed even and uneven aged structures on the remainder of Blodgett Forest.
 - b. To provide such research areas in locations convenient to field research facilities and on land where future activity can be controlled.
 - c. To provide locations where the rate of vegetation change is as slow as possible without management intervention.
 - d. To provide replicated experimental controls to compare against the more intensively managed areas on the forest.
- 3. These reserves will be allowed to develop vegetation structures driven by internal and external factors of stand dynamics.

4. Current reserves are:

| Compartment# | <u>Hectares</u> | <u>Acres</u> |
|--------------|-----------------|--------------|
| 220 | 30 | 74 |
| 292 | 54 | 133 |
| 390 | 13 | 31 |
| 510 | 14 | 35 |
| 520 | 10 | 25 |
| 600 | 18 | 45 |
| 630 | 6 | 15 |
| 650 | 9 | 23 |
| 1010 | 13 | 32 |
| 1030 | 4 | 9 |
| 1050 | 14 | 35 |
| 1070 | 10 | 24 |
| 1120 | 38 | 93 |
| 1160 | 5 | 12 |
| Total | 237 ha | 586Acres |

B. Administrative Reserves

1. Administrative reserves are not available for manipulative research. Administrative reserves are designated to protect exceptional visual, cultural and/or human habitation values. They may be manipulated by any means to further those goals.

2. Current administrative reserves are:

| Comp# | <u>Ha</u> | <u>Acres</u> | <u>Land Use</u> |
|-------|-----------|--------------|--------------------------------|
| 211 | 4 | 10 | Domestic Water |
| 250 | 35 | 85 | Headquarters and entrance road |
| 291 | 2 | 5 | Historic |
| 521 | 1 | 3 | Historic |
| 1090 | 17 | 42 | Fuelbreak |
| 1140 | 23 | 56 | Public Recreation |
| 1150 | 3 | 7 | Domestic Water |
| 1170 | 3 | 7 | Public Recreation |
| TOTAL | 87 ha | 215acres | |

C. Young-growth Reserves

1. The purpose of young growth reserves are:

- a. To provide a chronosequence of vegetation succession following disturbances that initiate regeneration of new cohorts to study wildlife, insects, disease, plant development and succession in plant communities and habitats different than the more-intensively managed even and uneven-aged structures on the remainder of Blodgett Forest.
- b. To provide such research areas in locations convenient to field research facilities and on land where future activity can be controlled.
- c. To provide locations where factors of vegetation change are unaltered by management intervention (except for the disturbance and post-disturbance regeneration period).

2. Young growth reserves will eventually consist of six age classes (~ 15 years apart) with stand ages comparable to the more-intensively managed even-aged and uneven-aged portions of Blodgett Forest. Once regenerated, these areas will remain unmanipulated from age 5 through ~90. Once each 15-year period, one such unit will be regenerated by the means most appropriate to secure an established cohort consisting of a wide variety of native tree species. Seedlings may be planted, but no pesticides or cultural treatments will be utilized during the regeneration (0-5 years) period.
3. These reserves will serve as controls for the even-aged stands that receive higher intensity management.
4. Future young growth reserve sites (i.e. prior to being regenerated) are available for research and manipulation to accomplish research before their initial regeneration schedule.

Current young-growth reserves are:

| Comp# | Ha | Acres | 1 st Scheduled Regeneration | 2 nd Scheduled Regeneration | | | | |
|-------------------|--------|----------|---|---|------|----|------------|-----------|
| 20 and 40 | 36 | 88 | 2030-2035 | 2120-2125 | | | | |
| 120 121 122 | } 25 | 61 | 2002 | 2090-2100 | | | | |
| 240 260 | | | | | } 24 | 58 | 2045-2050 | 2135-2140 |
| 464 | | | | | | | | |
| 490 | 29 | 72 | 2015-2020 | | | | | |
| 650 660 | } 25 | 61 | 2060-2065 | 2150-2155 | | | | |
| 1020 | | | | | 20 | 50 | On request | |
| Total: | 190 ha | 467Acres | | | | | | |

D. Even-Aged Compartments:

The even-aged compartments currently range in size from 1 to 68 acres averaging 24 acres. Even-aged compartments provide locations where the effects of treatments involved with even-aged stand management (e.g. planting and thinning) may be may be studied. Forest structure development will be monitored over a long time horizon (>50 years) in order to make empirical comparisons between even-aged and uneven-aged methods. The goal is to have forest compartments representing a balanced distribution of age classes.

Between regeneration harvests, management of existing stands may include commercial and pre-commercial thinning, prescribed burning, manual mastication of brush, and pruning, and other silvicultural tools.. Individual detailed silvicultural prescriptions are written for each compartment before each manipulative entry. Most even-aged compartments are manipulated every 10 to 20 years.

Even-aged compartments may be subdivided in order to meet management objectives, comply with current forest practice regulations, and facilitate particular research projects. Such sub-divisions preferably produce new compartments >5 acres in size. Acreage listed below may include minor amounts of non-productive land (e.g., rock outcroppings) and watercourses that require modification of the even-aged management regimes.

Shelterwood, seed tree, retention, and clear-cut techniques that use both natural and artificial regeneration are options available to meet research and management objectives. Management regimes may include various intensities of site preparation, livestock grazing, vegetation control, pre commercial thinning (PCT), burning, thinning, pruning, and other cultural activities. The average rotation age is assumed to be 60 to 90 years, adjustable based on current information available that will allow the above objectives to be met.

Most density control treatments in even-age compartments will utilize thinning from below, so that the post harvest average diameter is greater than the pre-harvest average diameter.

The following compartments will be thinned from above (high-graded) before regeneration. The intent will be to provide examples of stands managed by practices expected to degrade wood production, thus creating opportunities for research and extension of differences which may develop between this and other management styles.

| <u>Comp#</u> | <u>Ha</u> | <u>Acres</u> |
|--------------|-----------|--------------|
| 70 | 16 | 39 |
| 540 | 11 | 26 |

Even-Aged Compartments

| <u>Comp#</u> | <u>Ha</u> | <u>Acres</u> |
|--------------|-----------|--------------|
| 70 | 16 | 39 |
| 80 | 8 | 19 |
| 81 | 14 | 34 |
| 90 | 5 | 12 |
| 91 | 7 | 16 |
| 100 | 14 | 34 |
| 141 | 17 | 42 |
| 150 | 7 | 18 |
| 151 | 9 | 21 |
| 170 | 16 | 39 |
| 200 | 4 | 11 |
| 210 | 7 | 17 |
| 280 | 19 | 46 |
| 301 | 9 | 23 |
| 320 | 4 | 11 |
| 321 | 7 | 16 |
| 322 | 0 | 1 |
| 330 | 9 | 22 |
| 360 | 9 | 22 |
| 370 | 6 | 14 |
| 371 | 10 | 27 |
| 372 | 0 | 1.0 |
| 431 | 5 | 13 |
| 440 | 14 | 35 |
| 450 | 8 | 21 |
| 451 | 4 | 11 |
| 480 | 8 | 19 |
| 481 | 8 | 20 |
| 501 | 10 | 25 |
| 511 | 2 | 4 |
| 512 | 13 | 31 |

| | | |
|------|----|----|
| 530 | 15 | 37 |
| 531 | 6 | 16 |
| 540 | 11 | 26 |
| 550 | 5 | 12 |
| 551 | 9 | 22 |
| 552 | 5 | 10 |
| 553 | 3 | 7 |
| 560 | 6 | 15 |
| 561 | 2 | 4 |
| 563 | 1 | 2 |
| 564 | 0 | 1 |
| 580 | 8 | 19 |
| 581 | 11 | 26 |
| 611 | 2 | 6 |
| 612 | 3 | 7 |
| 620 | 8 | 20 |
| 621 | 3 | 7 |
| 622 | 2 | 4 |
| 623 | 4 | 9 |
| 624 | 6 | 15 |
| 640 | 17 | 41 |
| 1060 | 24 | 68 |
| 1130 | 16 | 40 |

Total: 436 ha 1078Acres

E. Uneven-Aged Compartments:

The uneven-aged compartments range in size from 8 to 69 acres averaging 42 acres. These compartments are regenerated by either individual tree or group selection. All entries are scheduled and supported by a set of silvicultural prescriptions (one for each compartment).

Current practice is to target long-term ideal residual growing stock levels ranging from 120 ft.²/acre to 250-ft.²/acre basal area. Maximum tree diameters will range from 35" to 50" depending on species. Diminution quotients for individual tree selection are currently targeted at 1.2, although modern alternatives for stocking control (e.g. leaf area index (LAI) and growing space allocation) may be used. Cutting cycle lengths range from 8 to 15 years at this time, but may be adjusted to meet research and management objectives. Most compartments should be near the desired multi-cohort stand structure by 2040.

Both natural and artificial regeneration may be utilized. Intermediate treatments may include various intensities of site preparation, burning, vegetation control, livestock grazing, PCT, thinning, pruning and other cultural activities.

Uneven-aged compartments may not be subdivided without approval from the Directors. Some non-productive land (e.g., rock outcropping) and watercourses that require modest changes in the uneven-aged management regimes are included in the acreage listed below.

| Comp# | ha | Acres | Regeneration Method |
|-------|----|-------|--------------------------------|
| 10 | 25 | 61 | Group Selection (GS) |
| 30 | 15 | 36 | GS |
| 31 | 1 | 2 | GS |
| 50 | 18 | 44 | GS |
| 60 | 24 | 59 | GS |
| 101 | 3 | 8 | Individual Tree Selection (IS) |
| 100 | 14 | 34 | IS |

| | | | |
|--------|--------|------------|----|
| 170 | 16 | 39 | IS |
| 110 | 18 | 44 | IS |
| 130 | 18 | 44 | IS |
| 160 | 24 | 60 | IS |
| 180 | 17 | 42 | GS |
| 190 | 23 | 58 | GS |
| 230 | 19 | 47 | IS |
| 270 | 27 | 67 | GS |
| 295 | 10 | 25 | GS |
| 340 | 17 | 43 | GS |
| 350 | 14 | 34 | GS |
| 380 | 22 | 55 | GS |
| 400 | 18 | 44 | GS |
| 410 | 20 | 49 | IS |
| 420 | 18 | 44 | GS |
| 470 | 9 | 22 | IS |
| 471 | 8 | 21 | IS |
| 500 | 15 | 38 | GS |
| 562 | 6 | 14 | GS |
| 570 | 13 | 32 | GS |
| 590 | 19 | 48 | GS |
| 670 | 10 | 24 | IS |
| 1080 | 23 | 58 | IS |
| 1100 | 26 | 64 | GS |
| 1110 | 28 | 69 | GS |
| Total: | 538 ha | 1220 Acres | |

F. Research Reserves

1. Research reserves are areas temporarily set aside out of other units on the Forest. They are created at the request of a principal investigator with approval of the Directors for <10 years to protect a specific research project from other research and management actions.
2. Such areas are not available for any uses not connected with the project for which they were reserved.
3. On expiration of the reserve period, these areas revert to their former status.
4. The Forest Manager maintains a record of all such areas.

G. Undesignated Areas

Land, which has been acquired, may be placed in the undesignated category until such time as the Directors determine approximate future use. Management of undesignated areas is limited to development of access, baseline data and short-term non-manipulative research. All such land will be afforded the same level of resource protection as the previous designated lands.

Section 19 485 acres

Section 27 220 acres

TOTAL ACRES: 705 acres

IV. BUDGET AND FISCAL MATTERS

- A. Blodgett Forest is a Center for Forestry research station and receives financial support from the budget of the Dean, College of Natural Resources. Each spring an annual list of user fees will be recommended by the Forest Manager, approved by the Directors, and made available to users by April 15, or as new research proposals are approved. Determination of the fee structure will utilize accepted UC rate and recharge policies.
- B. Supplementary funds will be derived from fees charged to individual research projects for use of housing, equipment, and labor by forest staff.
 - 1. All fees will be made payable to the Forest by the end of the field season in question, or upon receipt of a recharge statement from the Forest Manager, or by special advance arrangement.
 - 2. An annual service charge will be negotiated for research projects making extensive use of the Forest without using housing facilities.
- C. Charges for use of housing facilities for instructional purposes will be borne by the Unit sponsoring the course. A per person per night charge shall be made for class use of housing facilities.
- D. Sufficient fees will be charged to conference participants/sponsors to cover all costs incurred in support of such meetings at Blodgett Forest.
- E. Funds derived from product sales resulting from harvesting and cultural work in conjunction with research projects will be allocated to activities of the Center by the Research Stations Manager, approved by the Directors in an annual budget.

VI. PESTICIDE USE

- A. Applications of pesticides for forest management or research purposes are reviewed on a project-by-project basis and approved by the Directors prior to implementation. Timber Harvest Plans and associated Water Quality Waiver permits describe areas that may be sprayed following harvests. Applications must comply with University Pesticide Policy Communications (and subsequent revisions).
- B. Any and all applications must be fully detailed by substance, site, time, application method, and location and presented by the investigator or the Forest Manager to the Directors for review prior to application. This information is also posted at Blodgett nearby application sites and in a central location near headquarters.
- C. Although pesticides are currently a significant land management tool, research and administrative studies on reducing application amounts and using alternatives to pesticides shall be done to help achieve forest production and research objectives. Approval will not be given for the use of pesticides not currently registered in California for the specific proposed application.

VII. GRAZING

- A. Cattle and deer have a long historical presence in the mid-Sierra land type in which Blodgett is located and will continue an open range presence in the foreseeable future. The only practical way browsing or grazing by these animals can be either excluded or completely controlled in terms of timing and intensity is through the construction and use of suitable fencing.
- B. Browsing and grazing relate to several research and applied goals at Blodgett Forest. All of these objectives and purposes are accepted as valid reasons for grazing use and control at Blodgett.
 - 1. Research investigating the impact and effects of controlled grazing.
 - 2. Research investigating the effects of grazing and browsing exclusion.

3. Resource protection, particularly meadows, watercourses and riparian zones.
4. Forest management on the young growth compartments at Blodgett.
5. Other research needing non-grazed and/or browsed sites.
6. Minimizing reliance on pesticides for vegetation control.
7. Maintaining community goodwill on the Georgetown Divide.

C. To achieve these varied objectives:

1. The entire forest will be fenced as soon as practicable to enable inclusion or exclusion of livestock grazing from either the area north and/or south of Wentworth Springs Road. The Forest will maintain all perimeter fences.
2. For grazing use areas, research proposals from principal investigators or management proposals from the Forest Manager need to present specific prescriptions for levels, timing, animal control, resource protection, fence management, monitoring, and mitigation of potential adverse effects to the Directors for review prior to grazing use.
3. For exclusion of animal use over a period, a specific proposal is also needed stating the research or other justification for the enclosure.
4. Financial responsibility for construction, repair and removal of approved research fences are the responsibility of the project Principal Investigator.

VIII. TREE SPECIES DIVERSITY

A. General Goals

1. Maintain a reproductively viable population of each tree species native to Blodgett Forest.
2. Preserve the tree species provenances present when the University acquired Blodgett.
3. Maintain examples of the range of species composition commonly occurring in naturally regenerated stands of the Sierra Nevada mixed-conifer forest type.
4. Ensure that seed used for reforestation of managed stands is selected for meeting Forest objectives.

B. Reserves

1. Reserves are not manipulated hence control of species composition is not possible.
2. Reserves will serve as a local native gene reservoir.
3. Reserve boundaries and road edges will be periodically inspected. All non-native tree and shrub regeneration will be removed.

C. Managed Stands

1. General Requirements

- a. Tree species diversity will be managed to achieve a forest-wide average composition (basal area basis) at greater than 5% and less than 30% for each of six components: Ponderosa Pine

(PP), Sugar Pine (SP), Incense Cedar (IC), White Fir (WF), Douglas fir (DF), and all hardwoods combined. The Forest Manager will monitor species diversity and propose actions to prevent or correct significant departures from desired composition.

- b. The forest will develop and maintain a seed bank collected from Blodgett for each of the five major native conifers meeting the following criteria:
 - (1) Quantity sufficient to meet projected 10-year demand including reforestation after catastrophic fire event.
 - (2) Collected from phenotypes with superior vigor or wood product characteristics.
 - (3) Representing not less than 20 and preferably 100 individual trees per species each from widely separated stands.
- c. The Forest Manager will maintain records of species, seed source and stock type for each area regenerated on Blodgett.
- d. The Forest Manager will encourage adjacent landowners to utilize only local seed sources for regeneration adjoining Blodgett Forest.
- e. No trees native to Blodgett from populations external to Blodgett will be introduced to Blodgett Forest and allowed to reach sexual maturity unless specifically approved as part of a research project. Plants and animals not native to Blodgett Forest may not be introduced unless specifically approved as part of a research project. Each such project may be required to specify, and provide resources for, removal of exotic plants and animals, and non-Blodgett seed source trees before they become reproductively active.
- f. Giant Sequoia is a natural associate of the Sierran mixed-conifer type not native to Blodgett Forest. Regeneration of Giant Sequoia is limited by the constraints for tree species diversity in paragraphs "VIII C1a" above. Within managed stands Giant Sequoia will be permitted to reach maturity and reproduce naturally.

2. Young Growth Reserves

- a. Young growth reserves will be regenerated only with seed and/or seedlings from stands which themselves were regenerated from seed and/or seedlings solely from native Blodgett sources.
- b. Regeneration prescriptions will be designed to produce an average of at least 100 seedlings per acre (at age 5) of each of the five major native conifers. All hardwoods will be retained or allowed to sprout. Blodgett native hardwoods will be planted where the total of residual hardwoods and sprout clumps average less than 10 per acre.
- c. Young growth reserve boundaries and road edges will be periodically inspected. All non-native tree and shrub regeneration will be removed.

3. Even-aged, Uneven-aged and Research Reserve Compartments

- a. Except for specific research or demonstration projects, each planting and natural regeneration will be designed to allow each of the five major native conifers to comprise at least 10% and total hardwoods at least 5% (trees/acre basis) of the ten year age class or the immediately post PCT stand.
- b. Research proposals must detail species and seed source of all material to be used at Blodgett.