Clarifications after project sample group meetings shown in red.
Updates since 7/7/2000 psg messages shown in blue.

Project Sample Group Definitions

6/21/2000 Project Sample Group Meeting - Alternatives 2 &3

(also to be used for implementation notes for standards and guidelines 3108, 3109, 3110, 3111, 3112, 3113, 3114 for northern goshawk; 2301, 2302, 2304, 2306, 2307, 2308 for snags/down woody material; MAR1, MAR2 for American marten)

Introduction

This document revises project sample group definitions for Alternative 2 and adds direction for Alternative 3 based on additional information from the scientific interviews.

American Marten

High Potential for Marten Occupancy (MAR1, MAR2) – Alternatives 2 and 3

Cover Type	Structural Stage	Additional Stand Characteristics
White Spruce	3B, 3C, 4B, 4C, 5	
Ponderosa Pine (conditional - see Additional Stand Characteristics)	3B, 3C, 4B, 4C, 5[1]	Must have >=30% basal area of white spruce. Must have >=40% canopy cover percent. Must have average tree diameter >=8”.

- No minimum size for high potential habitat blocks is required.
- High potential habitat should be evaluated on a seventh level watershed. Do not analyze where slivers of watersheds fall within the project area. Use watersheds that cover the majority of the project area.
- Maintain microclimate conditions within areas of high potential for marten occupancy. Interpretation: no harvest in high potential habitat. In stands adjacent to high potential habitat, do not alter the microclimate of the edge of high potential habitat. The overall objective is to not reduce the size or quality of high potential habitat.
- Snag requirements (by cover type, by alternative) are to be applied within high potential habitat.
- Down woody material objectives (see below) should be applied within high potential habitat.
- No new road construction should occur within high potential habitat.

Travel Corridor/Connectivity Habitat (MAR2) – Alternatives 2 and 3

[1] Use structural stage for ponderosa pine only if white spruce basal area, canopy closure, and average tree diameter data does not exist. Where spruce data does not exist, pine stands (with the structural stages listed above) must be adjacent to high potential white spruce stands or be located in areas currently occupied by martens.

- Travel corridors will be maintained by providing high potential habitat as described above.
- Maintain microclimate conditions within travel corridors. Interpretation: no harvest in travel corridors. In stands adjacent to travel corridors, do not alter the microclimate of the edge of travel corridors. The overall objective is to not reduce the size or quality of travel corridors.
- If a corridor exists which connects two blocks of high potential habitat within seventh or across adjacent level watersheds, then it should be protected. If no corridors exist that connect two blocks of high potential habitat, no corridor needs to be provided under Phase 1 Amendment.
- If other appropriate corridors exist (as determined by district specialists) which connect two blocks of high potential habitat (e.g. ponderosa pine structural stage 4C or 5), these corridors can be protected at Interdisciplinary team discretion.
- Snag requirements (by cover type, by alternative) are to be applied within protected travel corridors.
- Down woody material objectives (see below) should be applied within travel corridors.
- No new road construction should occur within travel corridors.

Down Woody Objectives (MAR1)

The following objectives apply, or should be managed towards, within areas of high potential for marten occupancy or travel corridors.

Number of Logs per Acre	Minimum Length	Minimum Diameter
8	10 foot	10 inch DBH
2	10 foot	20 inch DBH

References

1. Fredrickson, Larry. SDGF&P Completion Report #90-10, Pine Marten Introduction into the Black Hills of SD, 1979-1988, pp. 12-13.
2. Marten Conservation Strategy (draft) Huron-Manistee NF (LP, Michigan), 1996. pp. 9-10, 21-22.
3. Freel, Maeton. A Literature Review for Management of Marten and Fischer on National Forests in California. Los Padres NF. USDS, FS-PSW Region, 1991, pp.6-7.
4. Habitat Suitability Index Models: Marten. USFWS, FWS/OBS-82/10.11.
5. RMRIS Data Dictionary. March, 1998. pp. 17, 28, 37, 62, 102-103, 179, 240, 283.
6. Scientific interviews.

Northern Goshawk Definitions

Nest Stand Characteristics (GOS 1) – Alternatives 2 and 3

The definition described in this document applies to how project sample groups looked at nest stands. This information was developed prior to expert interviews, which

recommended following the Southwest Guidelines in order to maintain species viability. For application of Phase 1 Amendment, the nest stand characteristics outlined in the Southwest Guidelines should be used for alternate and replacement nest stands. These would include stands in VSS classes 5 and 6 (see the document /fsfiles/office/rwsw/forestplan/id/nepa/phase_1_amend_info/gis/fw_analysis/documentation/phase_1_goshawk_analysis for a description of VSS classes 5 and 6) at a minimum of 50-70% canopy closure. Protected acreage requirements, enhancement treatments in alternate and replacement nest stands, and other management factors should also be consistent with the Southwest Guidelines.

- Southwest Guideline definitions of nest stand structure are not believed to be appropriate to the Black Hills because of site productivity, cover type, tree size, and age differences between the southwest and the Black Hills.
- Existing nest site coverage was overlayed with RIS site vegetation information, and average nest site characteristics were determined by site index. Average site and high site index breaks for the forest were used (<=62 for average site, >62 for high site) to determine average nest site characteristics. Data was not filtered on currently active or historic nest sites; that data was not available at this point in time. Queries and tables associated with this analysis can be found in */psg/psg_database/definitions.mdb*.
- Additional information on nest site characteristics was extracted from the two master's theses listed in the references. Additional science, as it becomes available, should modify the characteristics listed in the table.
- The table below lists average site characteristics associated with existing nest stands. These averages should be managed towards providing "180 acres best suited for nesting habitat," by site index. A *minimum* of 120 total square feet basal area is recommended for goshawk nest stands, as based on Bartelt, if the stand characteristics described below are not available. If stands with 120 square feet of basal area do not exist, then select stands that can be managed to attain a minimum of 120 square feet of basal area or to attain the characteristics described below. Activities in these stands "should be limited to those that aid in maintaining or enhancing the stand's value for goshawks."

Site Index	Cover Type	Crown Closure Percent	Total Basal Area	Basal Area 5-8.9" DBH	TPA 5-8.9" DBH	Basal Area >=9" DBH	Average QMD >=5" DBH[2]
<=62	TPP	68	144	52	189	84	9.4
>62	TPP	65	160	43	156	109	10.3

- Assume presence of goshawks for historically active nests if resurvey data is not available to justify otherwise.

[2] Minimum and maximum values of 8" DBH and 13" DBH, respectively, for <=62 site indices, minimum and maximum values of 7 and 14 respectively, for >62 site indices.

- "Protected acreage" should be located within ½mile of active or historic nest sites that occur within the project area boundary. If a historically active nest occurs within ½mile of the boundary of the project, then the amount of "protected acreage" provided within the project will depend on what is currently outside of the project; e.g. if 100 acres of suitable nest stands are currently protected outside of the project, then 80 acres need to be provided within the project.
- If 1997 Revision alternate/replacement nest stand designations best meet the above specifications, and are located within 1 mile[3] of the active of historically active nest and are a minimum of 30 acres in size, that acreage may be included in the "180 acres best suited for nesting habitat." If 1997 Revision alternate/replacement nest stand designations best meet the above specifications, and are located between one mile and 6000[4] acres and are a minimum of 30 acres in size, that acreage may be included in the "180 acres best suited for nesting habitat." It is considered more environmentally protective to designate acreage that is already suitable than to designate stands that are not. Ensure that documentation exists describing that these stands are considered more environmentally protective. PFA guidelines (see below), in either case, would apply to the active or historically active nest. Where the 180 acres of protected habitat is provided outside of the 1 mile buffer, balance of structural stages within PFA's (see below) would be a minimum of 420 acres.
- Where possible, locate replacement nest stands within .5 mile of permanent water.

Balance of Structural Stages for Post Fledgling Area (GOS3) – Alternative 2

- This alternative follows the PFA balance described in the Southwest Guidelines. This balance would consist of the following percentages in each size class/canopy closure category:

Size Class	Minimum Canopy Closure %	Percent of Balance	Percent Range Applied
1	None	10	7-13
2	None	10	7-13
3	None	20	15-25
4	50	13	8-18
4	60	7	2-12
5	50	20	15-25
6	50	20	15-25

- For additional documentation on size classes and analysis process used for alternative 2 goshawk balance of structural stages, refer to the document */fsfiles/office/rwsw/forestplan/id/nepa/phase_1_amend_info/gis/fw_analysis/documentation/phase_1_goshawk_analysis.doc.*

[3] One mile was selected because it is felt to still fall within an active goshawk territory and would still be on the periphery of the PFA.
[4] 6000 acres is considered a goshawk territory within the Southwest Guidelines.

- A minimum of 420 acres will be included in post fledgling areas. Requirements for this 420 acres does not include the 180 acres of protected areas suitable for nesting habitat. 180 acres of suitable nest stands will be provided, and should be located adjacent to or within the PFA. Total PFA, with protected acreage for nest stands, would total a minimum of 600 acres.
- The 420 acres will be buffered (using a circular buffer) from the nest site location. If this buffer bisects a stand, then that site is to be included within the PFA.
- Balance of structural stages within PFA's should be applied to historically active nests or alternate goshawk nest stands where they exist within the project area, or if they are located within ½mile of the project area boundary.
- If private land falls within the PFA buffer, it will be discluded from the buffer. An equivalent amount of Forest Service land will be added to the buffer (to meet at least 420 acres). It is considered more environmentally protective to consider only National Forest System lands for PFA buffers for Phase 1 Amendment.
- Where there is a conflict between management area direction and PFA balance of structural stages, follow whichever direction is more environmentally protective.

Balance of Structural Stages for Post Fledgling Area (GOS3) – Alternative 3

- This alternative follows the foraging area balance described in the Southwest Guidelines. This balance would consist of the following percentages in each size class/canopy closure category:

Size Class	Minimum Canopy Closure %	Percent of Balance	Percent Range Applied
1	None	10	7-13
2	None	10	7-13
3	None	20	15-25
4	40	20	15-25
5	40	20	15-25
6	40	20	15-25

- For additional documentation on size classes and analysis process used for alternative 3 goshawk balance of structural stages, refer to the document */fsfiles/office/rwsw/forestplan/id/nepa/phase_1_amend_info/gis/fw_analysis/documentation/phase_1_goshawk_analysis.doc.*
- Balance of structural stages will be provided on ponderosa pine forested types on a forest wide basis and applied on a seventh level watershed basis. This does not mean that stands only need to be dropped. Treatments may need to be modified, altered or placed in different locations than what was originally proposed in order to meet this direction.
- Maintain hardwoods and meadows (including restoration objectives) on a seventh level watershed basis.
- Where there is a conflict between management area direction and moving towards the balance of structural stages, follow whichever direction is more environmentally protective.

Disturbance in Relation to Goshawk Nests (GOS2)

Interim Direction- From March 1 through September 30, minimize additional human-caused noise and disruption beyond that occurring at the time of nest initiation (E.G. road traffic, timber harvests, construction activities) within ¼ mile of all active goshawk nests.

Forest Plan Standard 3111- Minimize human-caused disturbances (e.g. road traffic, construction activities) not present at nest initiation in active goshawk nests areas from March 1 through September 30.

The intent of this direction is to prevent nest abandonment and failure. Experience has shown that once the nest is completed and eggs are laid, goshawks will tolerate some increase in activity within the nest area. The exact level or amount or type of human-caused disturbance is unknown and likely depends of the individual goshawk, perhaps relating to her experience and age. In the Black Hills late March and April is the time for goshawk nest initiation activity. This is prior to the busy summer tourist season, but there is some dispersed recreational activity. Spring turkey hunting occurs in April-May. It is not possible to survey all known goshawk nest stands to check for activity prior to opening morning of hunting season, or before some recreational activities begin. It is also not realistic to close county, state or federal roads that will undoubtedly see increased road traffic (Sturgis motorcycle rally to name one source) just because a goshawk built a nest with ¼ mile.

Experience has shown that the intent of this direction can be met by preventing those significant human-caused disturbances within ¼ mile of the nest that are exceptionally noisy, or would likely continue for days and could cause the bird to flee. This would include, but is not limited to; timber harvesting, any heavy equipment construction (roads, trails), blasting (explosives), allowing a large group or SD National Guard bivouac site, or an ORV event within the ¼ mile of an active nest. It would not generally include things like; closing a non-motorized hiking trail, or closing an established campground just because the number of campers will increase. Nor would an area be closed to hunting, fishing, or other levels of 'single family' dispersed recreational activities.

Each active goshawk nest should continue to be evaluated individually with appropriate 'case-by case' mitigation recommended by the local district biologist as needed to reduce unacceptable levels of human-caused disturbance and achieve a successful nesting. While the ¼ mile 'no new disturbance zone' might continue to allow hiking, if a popular trail went through the actual nest stand that trail might need to be closed during the breeding season. This is the current approach taken on the Black Hills NF and it has been, by and large, successful in protecting active goshawk nests.

The Wildlife Society Technical Review (96-2) of the Management Recommendations for the Northern Goshawk in the SW (US) did not know of any studies of human disturbance on breeding goshawks. A study cited in the review, Knight and Skagen (1988) compiled examples of how human disturbance, including recreational uses, can alter activities of certain raptors. However, the technical review committee concluded that the

Management Recommendations which called for 1) No adverse management activities in nest areas at any time, and 2) Minimal human presence in active nest areas during the nesting season (March 1- Sept. 30), seemed a reasonable and conservative approach.

References

1. Bartelt, Paul E. 1977. Management of the American Goshawk in the Black Hills National Forest. Vermillion, SD: University of South Dakota. 102 p. M.S. thesis.
2. Erickson, Michael G. 1987. Nest Site Habitat Selection of the Goshawk (*Accipter gentilis*) in the Black Hills National Forest of South Dakota. Vermillion, SD: University of South Dakota. M.S. thesis, pp. iii, 9-28.
3. Reynolds, Richard T., Russel T. Graham, M. Hildegard Reiser, Richard L. Bassett, Patricia L. Kennedy, Douglas A. Boyce, Jr., Greg Goodwin, Randall Smith, and E. Leon Fisher. 1992. Management Recommendations for the Northern Goshawk in the Southwestern United States. GTR RM-217. Ft. Collins, CO: U.S. Department of Agricultre, Forest Service, Rocky Mountain Forest and Range Experiment Station. 90 p.
4. RMRIS Data Dictionary. March, 1998. pp. 17, 28, 37, 62, 102-103, 179, 240, 283.
5. TWS Technical Review 96-2, edited by David Capen (1996), pp. iii, 9.
6. Scientific interviews.

Green Tree Retention

Interpretation of Green Tree Retention Rates for Ponderosa Pine (SNG1-4) – Alternative 2

- Refer to the Landscape Level Snag and Green Tree Retention Model. Documentation under /fsfiles/office/rwsw/forestplan/id/nepa/phase_1_amend_info/psg/psg_info/psg_definitions/snag_model_outline_for_districts.doc

Interpretation of Green Tree Retention Rates for Ponderosa Pine (SNG1-4) – Alternative 3

- Providing a balance of structural stages for foraging areas as described by the Southwest Guidelines should provide adequate number of large diameter green trees for retention purposes. This is designed within the Southwest Guidelines.

Snag Densities for Other Forest Types

- White spruce: Six trees per acre, 10” DBH and greater will be provided through maintenance of high potential marten habitat and marten travel corridors.
- Hardwoods: Six trees per acre of the largest diameter and height class available should be provided. Follow implementation notes for guidelines 2202 and 2204 for additional clone maintenance and snag requirement direction.