

# WILDLIFE

## C-8 Old Growth Habitat for Goshawk

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Old Growth Habitat (Goshawk): active nesting territories	Annually	Decrease of 10% or more in active nest territories as measured by a 100% annual sample of known goshawk nest territories

The Lewis and Clark National Forest Plan (USDA 1986) identified northern goshawk as a Management Indicator Species (MIS) for old growth habitat. Forest-wide management standard C-5 provides that population levels of MIS be monitored and evaluated as described in the Forest Plan monitoring plan as shown in Chapter V of the Forest Plan. (USDA 1986, page 2-37) The Forest Plan monitoring plan item C-8 provides that for the goshawk "Old Growth Habitat" is monitored by sampling active nesting goshawk territories.

This report is a September 2007 update to the Lewis and Clark National Forest Plan Monitoring for item C-8, as described in Chapter V (USDA 1986, page 5-11).

### LEWIS AND CLARK GOSHAWK MONITORING AND INVENTORY

#### METHODS

The protocol set forth in the **Northern Goshawk Inventory and Monitoring Technical Guide**, August 2006 (B. Woodbridge and C.D. Hargis) for Intensive Search and Broadcast Acoustical goshawk surveys was used as a guideline for completing Northern Goshawk Territory Surveys in 2007. Surveys were performed in areas where there were known, active goshawk nests within the last 10 years. With these areas (territories), Intensive Search Surveys were performed within a 100 meter radius of previously recorded nest sites as outlined in the technical guide. The search combines visual searches for signs of goshawk presence (nests, whitewash, prey remains, molted feathers) along closely spaced transects. If no active goshawk nests were detected, then the Intensive Search Survey area was extended out to a 500 meter radius. If no active goshawk nests were located within the 500 meter radius search area, then the search area was extended out to a 1000 meter radius, and broadcast acoustical survey protocol was used for this larger area. Taped goshawk calls were played at points along transect routes to elicit responses from defensive territorial adult goshawk and their young. The technical guide survey protocol was stringently followed with one key exception. Broadcast surveys were completed within a 1000 meter radius of nest sites as opposed to the 1600 meters prescribed in the technical guide. The technical guide notes that, based on Reynolds et al. 2005, 95 percent of alternate goshawk nests used over a period of several years can be found within a search radius of 1000 meters. Consequently, in order to facilitate completion of both territory and project surveys for the 2007 goshawk breeding season, surveys were completed using the reduced, 1000 meter radius, survey area.

Survey activities were focused within forested areas deemed to be goshawk nesting habitat by the Lewis & Clark National Forest goshawk nesting habitat model and areas that were judged, from experience and training to be goshawk nesting habitat. Territory survey report maps were developed for each area surveyed with locations of survey points, nest locations, goshawk sightings, goshawk sign locations, various wildlife sightings and points of interest.

#### RESULTS

Based on these criteria, the number of known active nest areas has changed since the May 2004 monitoring report. If a nesting area was monitored for at least 8 out of 10 years with no evidence of activity, the nesting area was reclassified from active to historic. One nest area, Copper Creek, was

added back into the list in 2007. Documentation of previous years' surveys was inadequate to eliminate this area as an active nest area.

Table C-8a details the results of goshawk monitoring since 1980 and displays the activity identified at nest sites inventoried. It identifies those locations considered to meet the definition for an active nest area. Ten "territories" have been reclassified as potential or historic. These locations are highlighted on table C-8a. Historical nest areas may receive incidental monitoring, but will no longer be monitored to comply with this Forest Plan monitoring item. Continued monitoring may result in reclassification of some nesting areas from active to historic. Sites that have not been monitored in at least 8 out of 10 years will continue to be monitored to determine their status.

The table shows there were several new observations in 2007. Five new nest areas were identified. One of the new nest areas was on the Rocky Mountain Ranger District, one on the Belt Creek Ranger District and three on the White Sulphur Springs Ranger District. Additional active nest areas will continue to be added to the monitoring program as they are discovered.

Table C-8b below summarizes the results of Forest-wide monitoring each year since 1992. The number of active nest areas is based on the criteria described above for defining an active nest area, and has resulted in a change in numbers or percentages from those reported in previous monitoring reports. In 2007, all but one known territory were monitored. The Indian Point Territory, located in the Bob Marshall Wilderness, was not monitored. This territory is difficult to access due to its location and the decision was made to not monitor due to time and funding constraints.

As of 2007, 46 known active nest areas are located on the Lewis and Clark National Forest. More are located each year as we conduct surveys in project areas.

<b>Year</b>	<b>Active Nest Areas</b>	<b>Number of Nest Areas Monitored (%)</b>	<b>Number of Monitored Areas Occupied (%)</b>	<b>Number of Monitored Areas with Active Nests (%)</b>	<b>Change in % of active nest areas from previous year</b>
1992	19	11 (58%)	7 (64%)	6 (55%)	-----
1993	20	8 (40%)	4 (50%)	3 (38%)	-17%
1994	21	10 (48%)	4 (40%)	3 (30%)	-8%
1995	21	8 (38%)	0 (0%)	0 (0%)	-30%
1996	21	11 (52%)	5 (45%)	4 (36%)	36%
1997	21	3 (14%)	1 (33%)	1 (33%)	-3%
1998	23	10 (43%)	8 (80%)	6 (60%)	27%
1999	25	15 (60%)	9 (60%)	6 (40%)	-20%
2000	26	17 (65%)	8 (47%)	3 (18%)	-22%
2001	28	24 (86%)	14 (58%)	9 (38%)	20%
2002	33	26 (79%)	16 (62%)	11 (42%)	5%
2003	32	27 (84%)	9 (33%)	4 (15%)	-27%
2004	33	29 (88%)	6 (21%)	4 (14%)	-1%
2005	33	7 (21%)	1 (14%)	0 (0%)	-14%
2006	40	24 (60%)	16 (67%)	13 (54%)	54%
<b>2007</b>	<b>46</b>	<b>45 (98%)</b>	<b>29 (64%)</b>	<b>17 (38%)</b>	<b>-14%</b>

\* This data was screened using the criteria reported above to define active goshawk nest areas; therefore, numbers are different than previously reported.



Data display and nomenclature has changed since our July 2006 update of this monitoring item as a result of definitions in the Northern Goshawk Northern Region Overview, April 2007 (L. Brewer et al.). The following is a key to the data in Table C-8a.

Key for 1980 to 2006 data		Key for 2007 data	
<blank>= not monitored		<blank> = not monitored	
I = Inactive (no birds found)		S = surveyed with no detection (inactive)	
		P = presence (no confirmed occupancy)	
O = occupied (birds found, no nesting observed)		O = confirmed occupancy (no nesting observed)	
A = active nest (bird or young in nest)		A = active nest (bird or young in nest)	
F# = fledglings (e.g. F3 = 3 fledglings)		F# = fledglings (e.g. F3 = 3 fledglings)	
	Prior to year found		Not Active

Of the 46 known active nest areas; 17 of these occur on the Rocky Mountain Division and 29 occur on the Jefferson Division. In 2007, in addition to the discovery of 5 new nest sites, there was a 14% decrease from 2006 in percentage of active nests on the Forest. The Forest Plan monitoring item states that a decrease of 10% or more in active nest territories would initiate further evaluation.

## EVALUATION

Table C-8b indicates that on the Lewis and Clark annual variation (both decreases and increases) in the percentage of active nest areas exceeded 10% in 11 of 15 years (73% of all years surveyed). From the research and studies discussed in previous monitoring reports, it is evident that it is common to have the percentage of active nest areas vary by more than 10% annually. The variability experienced on the Forest is within the range of variances in goshawk nesting occupancy and success experienced under natural conditions, as documented in the literature.

Many factors contribute to the variability. Annual variations in weather and climate occur. Cold and wet weather while eggs are being incubated and nestlings are young can cause mortalities and nest failure. Weather also affects the reproductive success and availability of prey. Density dependent territoriality and both intraspecies and interspecies competition can affect nesting success. Predation of nests, fledglings, and adults can also affect nesting success. These factors and others yet to be identified all affect the annual change in percentage of active nest areas. As outlined in our 2006 monitoring report, the direction to conduct further evaluation when a 10% decrease is identified does not address any of the potential reasons for the variability. The exception to this is that some variation may be explained by survey methodology, and that has been addressed by adopting a standard protocol for the Lewis and Clark.

The Forest continues to identify new nesting areas, and new nests within known home ranges. This has resulted in steady upward trend in the number of nests and nest areas known and monitored on the Lewis and Clark. In 2008 the forest will continue to monitor all known active nest areas and further evaluations will be reported when that data is compiled. This addresses the further evaluation requirements of the Forest Plan. (See pages 5-7 and 5-8 of the Forest Plan).

Count	District	Name	monitoring results																								Notes					
			1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002		2003	2004	2005	2006	2007
1	1	Lower Blacktail Territory																				I	I	I	O				S	2-3 downy young in nest		
2	1	Upper Blacktail Territory																				O	I	O	I	I			O	2-3 downy young in nest		
3	1	Bailey												O									I	I	I					bird seen 1991, not surveyed until '01, unoccupied nest found '02		
4	1	Renshaw													O								I							aggressive bird in 1992 but nest never found		
5	1	Ford Creek North Territory															A				I	I	I	I				A2	O	fledglings observed in area 1985		
6	1	Beaver Basin Territory													A		O				I	I	I	O	I	I			A	nest disappeared in 2000, bird observed in area in 2002		
7	1	Elko Territory														A						O	O	A	O	AF1	O	A2	A	at least 1 nestling and fledgling in 2007		
8	1	Fairmule Territory													O				A			AF1	I	AF1	I	I	I		F3	A	Survey in 1994 possibly in wrong area, 2006 no nest found	
9	1	Muddy Creek Territory																				AF2	O	I	I	I	I		AF1	2 nestlings, at least 1 fledgling in 2007		
10	1	Green Gulch Territory																				AF1	O	I	I	I	I		S			
11	1	Indian Point Territory																				A	O	AF1							File unclear on 1997 and 1998 activity	
12	1	Two Med Territory																						A	O	AF2			A	Aggressive bird in area in 2001 but no nest search done; in 2007, 2 nestlings, unknown fledglings found		
13	1	Box Creek Territory																						AF2	I	I			AF1	Birds first seen in area in 2001; non-aggressive bird seen 2003; at least 1 nestling & fledgling seen in 2007		
14	1	Badger Junction																					O	F1	I	I			S	2001- fledgling and adult but no nest, 2000-2001 cluster of obs. Of aggressive adult		
15	1	Lonesome Ridge Territory																									O	A	A	2 nestlings, unknown fledglings in 2007		
16	1	Arsenic Creek																									O	O				
17	1	Mule Creek Territory																										A1	S			
18	1	Ford Creek South Territory																										AF3	O			
19	1	Double Falls Territory																										A1	AF1	Adult observed in area in 2001; 3 nestlings, at least 1 fledgling in 2007		
20	1	Mortimer																											A	2 nestlings, unknown fledglings in 2007		
21	3	Blanding Gulch Territory																						AF1	O	I	I	I	I	S	nest found 1996, no birds recorded	
22	3	Crawford Creek Territory																					AF2	I	I	I	I	I	I	S		
23	3	Bear Coulee Territory																										AF1	AF2			
24	3	Dry Fork																											O			
25	4	Beldon Flat Territory	O	O						F2	A	A	A	I	A	O	I	I	I	O				F2	A	A	I	I	F2	AF1	at least one fledgling in 2007	
26	4	Blacktail Hills North Territory																									O	A	S			
27	4	Blacktail Hills South																										F2	S			
28	4	Dry Gulch Territory												A	I	I	A	I	I	A		F2		O	O	I	I	I	S			
29	4	Arrow Creek Territory												O	F2	A	O	I	I	I		A	F2	F1	A	A	F3	I	O			
30	4	Yogo Creek Territory																					F2		I	F2	O	I	I	O		
31	4	Tollgate Territory																														
32	4	Skunk Gulch Territory																														
33	4	Dry Pole Territory																														
34	4	Indian Hill Territory																														
35	4	Ettien Ridge Territory																														
36	6	Neil Creek Territory																														
37	6	Pasture Gulch Territory																														
38	6	Elephant Rock Territory																														
39	6	Townsend Gulch Territory																														
40	6	West Fork Comb Creek																														
41	6	Whitetail																														
42	6	Mill Creek																														
43	6	Galloway Blowdown																														
44	6	Flagstaff																														
45	6	Upper Ashbridge																														
46	7	Lake Creek																														
47	7	Cabin Creek Territory																														
48	7	Daniels Creek Territory																														
49	7	Eagle Creek Territory																														
50	7	Cascade Creek																														
51	7	Copper Creek																														
52	7	Grasshopper Creek Territory																														
53	7	W Fk Cottonwood Creek																														
54	7	Mass-Geis																														
55	7	Allen Gulch																														
55	7	Newlan Creek																														

Key for 1979 to 2006 data  
 leave blank if not monitored  
 I = inactive (no birds found)  
 O = occupied (birds found, no nesting obs.)  
 A = active nest (bird or young in nest)  
 F# = fledglings (e.g. F3 = 3 fledglings)

■ = prior to year found  
 ▨ = not active  
 A territory is designated if within the last 10 years an active nest was found, or recently fledged young observed.

# known territories	19	20	21	21	21	21	23	25	26	28	33	32	33	33	40	46
# monitored territories	11	8	10	8	11	3	10	15	17	24	26	27	29	7	25	45
# occupied territories	7	4	4	0	5	1	8	9	8	14	16	9	6	1	16	29
# active nests	6	3	3	0	4	1	6	6	3	9	11	4	4	0	13	17
% territories monitored	58%	40%	48%	38%	52%	14%	43%	60%	65%	86%	79%	84%	88%	21%	63%	98%
% monitored territories occupied	64%	50%	40%	0%	45%	33%	80%	60%	47%	58%	62%	33%	21%	14%	64%	64%
% monitored territories nesting	55%	38%	30%	0%	36%	33%	60%	40%	18%	38%	42%	15%	14%	0%	52%	38%
yearly difference		-17%	-8%	-30%	36%	-3%	27%	-20%	-22%	20%	5%	-27%	-1%	-14%	52%	-14%

Key for 2007 data  
 leave blank if not monitored  
 S = surveyed with no detection (inactive)  
 P = presence (no confirmed occupancy)  
 O = confirmed occupancy (no nesting observed)  
 A = active nest (bird or young in nest)  
 F# = fledglings (e.g. F3 = 3 fledglings)