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# **Goshawk Ecology and Habitat Relationships on the Tongass National Forest**

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**Federal Aid in Wildlife Restoration  
1997 Field Season Progress Report  
1 July 1997–30 June 1998**

**Study SE-4-2**

**Prepared for  
U.S. Forest Service  
U.S. Fish and Wildlife Service**

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**GOSHAWK ECOLOGY AND HABITAT RELATIONSHIPS  
ON THE TONGASS NATIONAL FOREST  
1997 FIELD SEASON PROGRESS REPORT**

*Prepared for*  
USDA FOREST SERVICE  
ALASKA REGION  
TONGASS NATIONAL FOREST

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PACIFIC NORTHWEST FOREST & RANGE EXPERIMENT STATION  
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FEBRUARY 1998

Cover: Craig Flatten, ADF&G wildlife biologist, releases radiotagged goshawk

## RESEARCH PROGRESS REPORT

**STATE:** Alaska **STUDY No.:** SE-4-2  
**COOPERATORS:** US Fish and Wildlife Service, Alaska Region; US Forest Service, Alaska Region, Tongass National Forest and the Pacific Northwest Forest and Range Experiment Station, Juneau Forest Sciences Laboratory  
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**PERIOD:** 1 July 1997–30 June 1998

### SUMMARY

During 1997 Alaska Department of Fish and Game (ADF&G) staff continued northern goshawk (*Accipiter gentilis*) surveys across Southeast Alaska in cooperation with the USDA Forest Service (FS). The objectives of this multiyear study were to survey goshawks and their nest sites while gathering habitat and survival data as part of an interagency monitoring program. During the 1997 field season, ADF&G and FS staff monitored the activity status of known nest areas, searched for nest sites in areas where goshawk activity had been observed or reported, captured goshawks at active nest sites, and monitored radiotagged goshawks. Between 1991–1997, we documented 72 nesting attempts at 45 nesting areas. Only 22 (36%) of 61 nest attempts at 38 areas represented consecutive year nest area reoccupancies. A total of 15 active goshawk nests were identified at 16 active nesting areas located across Southeast Alaska as a result of interagency efforts in 1997. Of the 15 active nests, 11 occurred within previously known nest areas and 4 occurred in new nest areas. Additionally, 1 new nesting area located in 1997 was active but the nest was not found. Consequently, with the discovery of 5 new nest areas in 1997, the cumulative number of nest areas documented in Southeast Alaska increased from 45 to 50. A total of 31 goshawks (16 adults, 15 juveniles) were captured in Southeast Alaska during the summer 1997 field season. Sixteen documented nesting attempts produced 32 young for a mean productivity of 2.0 young/nest (range 0–3). For the 6-year period 1991–1997, 72 documented nesting attempts produced 144 young for a mean productivity of 2.0 young/nest (range: 1.5–2.3). Blood and tissue samples were collected from captured goshawks in 1997 and are being archived for future use. Between 1991 and 1997 prey remains were routinely collected during visits to nest stands as part of ongoing studies of goshawk food habits in Southeast Alaska. In 1997 ADF&G, FS, Forestry Sciences Laboratory (FSL), US Fish and Wildlife Service (FWS), and Boise State University (BSU) began planning an interagency study of goshawk food habits in Southeast Alaska.

**Key words:** *Accipiter gentilis*, *Accipitridae*, forest management, northern goshawk, raptor, Tongass National Forest.

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## INTRODUCTION

In 1991 the Alaska Department of Fish and Game (ADF&G) and the USDA Forest Service (FS) initiated a study of northern goshawk (*Accipiter gentilis*) ecology and habitat relationships on the Tongass National Forest in Southeast Alaska. In 1997 ADF&G and FS personnel completed the seventh field season of cooperative nest searches. This report summarizes the results of 1997 field season activities, including ADF&G goshawk surveys and nest area monitoring on the Tongass National Forest, and progress with ongoing ecological studies.

Despite years of cooperative effort by ADF&G, FS, and FWS biologists to locate goshawks and their nests, the number of nesting areas identified to date in Southeast Alaska remains relatively low. After 7 field seasons of searching, 50 goshawk nest areas have been identified (Tables 1 and 7). Given the high level of search effort, the relatively low number of documented nesting areas tends to support the observation that goshawk breeding densities in Southeast Alaska seem lower than those reported elsewhere within the species' range.

Documented goshawk nest site and nest area reoccupancy rates in Southeast Alaska are also low, compared to those reported for this species elsewhere. Between 1991 and 1997 we documented 61 nesting attempts at 38 nest areas that were checked for consecutive year reoccupancy. Based on our search efforts, only 22 (36%) of 61 attempts represented consecutive year nest area reoccupancies. In 1997 we documented 3 instances in which nest areas previously classified as inactive were reoccupied after periods of inactivity ranging from 1 to 5 years (Tables 1 and 7).

## DISCUSSION

### NESTING ACTIVITY

During the 1997 field season ADF&G staff focused on monitoring the activity status of known nest areas, searching for nest sites in areas where goshawk activity had been observed and/or reported, capturing goshawks at active nests, and monitoring radiotagged goshawks. Survey efforts included searches at previously identified nest areas and at new locations where goshawks

or evidence of nesting were observed and/or reported. Still other nests were located by tracking radiotagged adult goshawks to nesting areas different from those of the previous year.

In 1997 15 active goshawk nests were identified at 16 active nest areas located as a result of interagency search efforts in Southeast Alaska. Of the 15 active nests, 11 occurred within previously documented nest areas and 4 occurred within new nest areas located in 1997. Additionally, 1 new active nesting area was located in 1997, but the active nest was not found. With the discovery of 5 new nest areas in 1997, the cumulative number of nest areas documented in Southeast Alaska increased from 45 to 50 (Table 1). The highest number of documented active nests occurred in 1994 when 21 active nest areas were located (Fig. 1).

In 1997, as in previous years, nest area reoccupancy rates remained relatively low in Southeast Alaska. Just 6 of 11 nest areas known to be active in 1996 also contained an active nest in 1997. We conducted nest searches, ranging from 1 visit lasting several hours to 10 or more visits over the course of the breeding season, at 40 of the 45 nest areas identified between 1991 and 1996. Based on interagency search efforts, only 11 of the 40 previously documented nest areas searched contained active nests in 1997. Goshawk activity (e.g., responses, sightings) was detected at 7 known nest areas where active nests were not found (Table 1).

Between 1992 and 1997, 8 adult females moved to new breeding territories and nested with new mates. The mean distance between nests for these 8 radiotagged females was 38.4 km, with a median distance of 25.8 km, and a range of 3.2 km to 152 km (Table 2). In 1997, one radiotagged adult female moved 152 km between her 1996 nest site at Cutthroat Creek, Prince of Wales Island and a new nest site at Security Bay, Kuiu Island where she bred with a new mate (Table 7). This represents the largest between-nests movement documented to date. Also in 1997, one female and her mate (Margaret Lake, Revillagigedo Island) moved 3.2 km to a new nest site within their documented home range. Another adult female (Green Cove, Admiralty Island) moved 2.4 km to a new nest site within her documented home range and nested with a new mate after her 1996 mate died. One male (Rio Roberts Creek, Prince of Wales Island) moved 2.9 km to a new nest site in 1996 and moved an additional 1.6 km in 1997 to another new nest site; however, these alternate nests were still within the male's previously documented breeding territory. We have not documented an adult male moving to a new breeding territory.

Of 16 active nest areas located in 1997, 11 were found by searching known nest areas, 1 was found while conducting goshawk surveys in an area where previous observations had been documented, 1 was found by tracking a radiotagged adult female goshawk to a new nest area, 1 was found as a result of incidental sightings, 1 was found as a result of goshawk surveys related to timber sale preparation, and 1 resulted from goshawk observations by a member of the public engaged in recreation. Of the 50 goshawk nest areas located on the Tongass National Forest since 1991, 24 (48%) were located during activities associated with timber sale preparation or harvest, 16 (32%) were located as a result of searches or events unrelated to timber harvest, and 10 (20%) were found by following radiotagged adult females to nesting sites which differed from that of the previous year (Table 1).

## **PRODUCTIVITY**

In 1997 16 documented nesting attempts in Southeast Alaska produced 32 young for a mean productivity of 2.0 young/nest (range 0–3). One nest failure was documented in 1997 (Distin Lake, Admiralty Island). This nest failure occurred during the incubation period. Of 72 total nesting attempts documented since 1991, 4 attempts failed. Of these 4 nesting failures, 2 occurred during the incubation period and 2 occurred during the fledgling dependency period. For the six-year period 1991–1997, 72 documented nesting attempts produced a total of 144 young for a mean productivity of 2.0 young/nest (range = 1.5–2.3; Table 6).

## **GOSHAWK CAPTURES**

In 1997 ADF&G personnel captured 31 goshawks (16 adults, 15 juveniles) at 11 nest sites in Southeast Alaska (Table 6). Additionally, the Juneau Raptor Center rehabilitated 1 injured immature goshawk, banded by ADF&G before its release. We attached radiotransmitters to 11 goshawks (7 adults, 4 juveniles) captured for the first time and replaced transmitters on 8 adults captured on 1 or more previous occasions.

Since 1992 we have captured and/or banded 109 goshawks (49 adults, 53 juveniles, 7 immature) in Southeast Alaska (Table 8). Of these, 87 were fitted with radiotransmitters (48 adults, 35 juveniles, 4 immature), including 81 goshawks (46 adults, 35 juveniles) captured at nest sites and 7 goshawks (2 adults, 5 immature) captured away from nest sites. Tables 3 and 4 give the history and status of all adult female and adult male goshawks, respectively, radiotagged in Southeast Alaska 1992–97.

## **DIET ANALYSIS**

In 1996 a preliminary analysis of goshawk food webs was conducted by comparing natural abundance of stable isotope ratios (carbon and nitrogen) of goshawk feather samples with tissue samples from prey species from across Southeast Alaska (Ben-David 1996). This preliminary examination of 15 goshawk feather samples collected across Southeast Alaska indicated high variability in the composition of goshawk diets during the breeding season. Some individuals apparently consume songbirds and squirrels, while others feed mainly on birds or mammals that feed in intertidal or marine environments. Feather samples were collected from 22 captured goshawks in 1997 and will be used to further assess goshawk diets by expanding the 1996 preliminary stable isotope analysis comparing carbon and nitrogen ratios found in goshawk feathers and prey tissue samples.

Peer review of this project suggests a need to intensify studies of goshawk diet and prey brought to nests in Southeast Alaska. Since 1991 biologists visiting goshawk nest stands have routinely collected prey remains. Although these prey remains have undergone preliminary analysis, they have not been quantified in detail. Also, we lack an assessment of prey brought to nest locations with differing prey availability.

In 1997 the cooperating agencies began planning a cooperative arrangement with Boise State University (BSU) for an interagency study of goshawk food habits in Southeast Alaska. BSU will describe and quantify the prey brought to goshawk nest stands based on a sample of prey remains collected as part of the interagency goshawk project from 1991–1997. BSU will develop ecological hypotheses about goshawk prey selection in areas of Southeast Alaska with differing

prey availability and will acquire and analyze data in such a manner that these hypotheses are tested. Field activities associated with the goshawk food habits study will begin in 1998 and continue through 1999.

#### **GENETIC SAMPLES**

A 1995 analysis of genetic variation and taxonomic status of northern goshawks in Arizona that compared 49 genetic samples from Southeast Alaska goshawks with 336 samples from elsewhere in the United States failed to provide conclusive results about the subspecific status of *A. g. laingi* (Gavin 1995). Nonetheless, staff biologists are continuing to collect blood samples from captured goshawks in Southeast Alaska. We collected blood samples from 15 captured goshawks in 1997. Since 1992, >75 goshawk blood samples have been collected and are being archived for use in future genetic analyses. In addition to blood samples, we collected tissue samples from 13 captured goshawks by plucking a small contour feather from each bird and preserving the tip of the feather shaft along with attached residual tissues in an alcohol solution.

#### **RECOMMENDATIONS**

1997 was the seventh full field season of goshawk study in Southeast Alaska. Study objectives were altered slightly in 1996 to focus on surveying and monitoring of nests and adult goshawks in terms of survival and interyear movements. The primary objective of this phase of study is to examine patterns of nest site fidelity and movements by adult goshawks to new nesting areas. Some female goshawks continue to exhibit large movements to new nesting areas between years, so radiotelemetry is a key component of this work.

Monitoring of nests and adult goshawks should continue for a few more years to establish adequate sample sizes to understand the importance of goshawk nesting areas to birds, document the portion of the adult population moving between nesting areas, and provide survival rate estimates. Understanding long-term patterns of reuse of goshawk nesting areas is important for those implementing the Tongass Land and Resource Management Plan of 1997. That plan has specific management guidelines for goshawk nesting areas. Evaluation of these guidelines will provide useful information for future adaptive management decisions to maintain viable and well-distributed goshawk populations on the Tongass National Forest.

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Significant interagency cooperation by ADF&G, FS and FWS integrated field studies and data management associated with ongoing ecological studies. The Forest Service's regional office, the Ketchikan, Stikine, and Chatham area offices, and especially the Thorne Bay, Craig, Misty Fjords, Petersburg, Juneau, Hoonah, and Sitka ranger districts provided important logistical, technical and staff support. Chris Iverson's administrative support and assistance with practical decisions on study direction were instrumental in the continuation of this difficult study. Terry Shaw of the Forestry Sciences Laboratory provided valuable technical assistance and support; we appreciate his insights linking science to forest management. Gene DeGayner and Gary Fisher provided valuable GIS support. LaVern Beier and Tom Schumacher assisted with radiotelemetry data collection. Peter Walsh assisted with field data collection and data management. Other persons deserving special recognition are Cole Crocker-Bedford, Stewart Bentley, Joachim Bilancio, Philip Bordelon, Mike Brown, Kerry Burns, Marla Dillman, Cheri Ford, Vince Franke, Leslie Garcia, Melissa Green, John Haddox, Steve Heinl, Moira Ingle, Ken Jouppi, Michelle Madsen,



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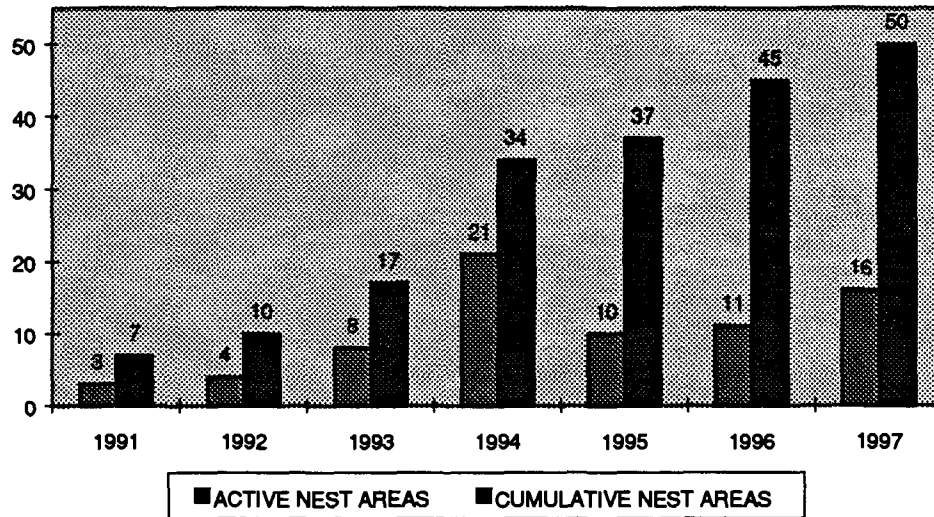
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**DOCUMENTED NORTHERN GOSHAWK ACTIVE AND  
CUMULATIVE NESTING AREAS IN SOUTHEAST ALASKA  
1991-1997**



**Figure 1 Documented Goshawk active nest areas and cumulative nesting areas in Southeast Alaska, 1991–1997**

**Table 1 Activity status of known goshawk nest sites, Southeast Alaska 1985-97\***

radiotag = found by tracking tagged goshawk(s)  
 timber = found during timber sale activities  
 survey = found during nest search  
 recreation = found during recreational activities  
 other = found as result of incidental observation  
 during other activity

N = nest area first located this year  
 A = active nest located this year  
 A = active alternate nest  
 G = goshawk(s)/activity observed during breeding season,  
 active nest not located.  
 O = no goshawk/activity observed, active nest not located  
 R = adult(s) radiotagged and/or present  
 X = area not checked

Nest Area	Found by	85	86	87	88	89	90	91	92	93	94	95	96	97
<b>Ketchikan Area, Tongass N.F.</b>														
Butterball Lake, Heceta Island	radiotag									G	NAR	O	O	O
Carroll River, Revilla Island	survey												G	NA
Cutthroat P.O.W. Island	radiotag												NAR	AR
Convenient Cove, Hassler Is.	survey							G	G	NA	G	G	G	O
Logiam Creek, P.O.W. Island	timber								NAR	O	O	O	O	O
Margaret Lake, Revilla Is.	other									NA	G	AR	AR	AR
Port Refugio, Suemez Is. (89)	timber	NA	O	O	G	G	A	G	G	A	G	G	O	O
Rio Roberts Creek, P.O.W. Is.	survey										NAR	O	O	O
Sarheen Creek, P.O.W. Island	timber				G	G	G	G	O	O	O	O	O	O
Sarkar Lake, P.O.W. Island	survey					NAR	O	O	O	G	O	O	O	O
Timber Knob, Heceta Island	other												NA	A
Traitors Creek, Revilla Is.	timber									NAR	AR	O	O	O
Twelvemile Arm, P.O.W. Island	timber											NO	O	O
<b>Stikine Area, Tongass N.F.</b>														
Big John Creek, Kupreanof Is.	timber					NA	AR	O	O	O	O	O	O	O
Camp Carl, Etolin Island	other													NAR
Cat Creek, Cape Fanshaw	timber									NAR	O	O	O	X
Deer Island	timber													NA
Duncan Creek, Kupreanof Is.	timber									NA	O	O	O	G
East Bay of Pillars, Kuiu Island	radiotag									NAR	AR	X	AR	AR
Irish Lakes, Kupreanof Island	timber												NA	G
Kadake Bay, Kuiu Island	radiotag												NAR	O
Kake, Kupreanof Island (89)	timber	NA	O	X area cut 89		X	X	X	X	X	X	X	X	X
Mitchell Creek, Kupreanof Is.	timber									NAR	A	O	O	G
Mossman Inlet, Etolin Is. (86)	timber	NA	X	X	O	O	O	X	X	X	X	X	X	X
Mountain Point, Kupreanof Is.	timber									NAR	O	X	O	O
Negro Creek, Port Houghton	timber									NA	G	O	O	O
Rowan Creek, Kuiu Island	timber								NAR	O	G	O	O	G
Sanborn Canal, Port Houghton	timber									NA	O	O	O	X
Security Bay, Kuiu Island	radiotag													NAR
Starfish, Etolin Island	timber				NA	O	O	O	O	O	O	X	O	O
Totem Camp, Kupreanof Island	timber									NA	O	X	O	O
Upper Totem, Kupreanof Island	timber								NO	O	O	X	O	O
West Bay of Pillars, Kuiu Island	radiotag									NAR	AR	X	G	G
<b>Chatham Area, Tongass N.F.</b>														
Blueberry Hill, Douglas Island	other								NAR	AR	AR	GR	AR	AR
Dewey Lk., Skagway (85)	recreation	NA	X	X	X	X	X	X	X	X	X	X	X	X
Distin Lake Trail, Admiralty Is.	other									NA	X	X	A	A
Duffield Peninsula, Baranof Is.	timber									NA	A	A	O	O
Eagle Creek, Douglas Island	survey								NAR	O	O	O	O	O
Eagle River, Juneau Mainland	recreation													NG
Fish Creek, Douglas Island	radiotag									NAR	AR	AR	AR	AR
Florence Bay, Chichagof Island	other												NAR	O
Green Cove, Admiralty Island	radiotag												NAR	AR
Lace River, Berners Bay	radiotag									NAR	O	O	O	O
Mud Bay River, Chichagof Is.	timber								NA	A	G	X	O	O
Nugget Crk., Mendenhall Glacier	radiotag								NAR	AR	O	O	O	AR
Pavlof River, Chichagof Island	timber										NAR	O	O	O
Point Bridget, Juneau Mainland	recreation					NA	AR	O	G	G	G	G	G	G
Ready Bullion Crk., Douglas Is.	recreation				NA	AR	O	O	O	O	O	O	O	AR
Turner Lake, Juneau Mainland	recreation												NG	A
Whitestone, Chichagof Island	other										NAR	AR	O	O

**Table 2 Distances between nests for adult female goshawks which moved to new breeding territories**

<b>Ad. Female</b>	<b>Nest Area Movement</b>	<b>Distance</b>
SLF1	Sarkar Lake, P.O.W. Island to Butterball Lake, Heceta Is.	27.1 km
BJF1	Big John Lake, Kupreanof Is. to west Bay of Pillars, Kuiu Is.	43.4 km
RNF1	Rowan Creek, Kuiu Is. to east Bay of Pillars, Kuiu Is.	9.8 km
ECF1	Eagle Creek, Douglas Is. to Fish Creek, Douglas Is.	3.2 km
PBF1	Point Bridget, mainland to Lace River, mainland	24.5 km
BBF1	Blueberry Hill, Douglas Is. to Green Cove, Admiralty Is.	18.5 km
WPF1	West Bay of Pillars, Kuiu Is. to Kadake Bay, Kuiu Is.	28.2 km
CTF1	Cutthroat Creek, P.O.W. Is. To Security Cove, Kuiu Is.	152.0 km
<b>mean distance moved</b>		<b>38.4 km</b>
<b>median distance moved</b>		<b>25.8 km</b>

Table 3. Status of adult female goshawks captured and radiotagged in Southeast Alaska, 1992-97

Bird	Location	Band #	First Captured	Recaptured (year)	12/97 Status	1992	1993	1994	1995	1996	1997	comments
93NCAF	Sunny Point, Juneau	1387-02003	2/10/92	93, 94	dead		T,N	N	D			banded 2/92; first tagged 6/93; died 2/95
92SLAF	Sarkar Lake, P.O.W. Island	1387-64171	6/10/92	94	dead	T,N	X	N	D			moved 43.2 km in 94, new mate. died 3/95
92RBAF	Ready Bullion Crk., Douglas Is.	1387-64173	7/2/92		dead	T,N,D						presumed dead 9/92
93BBAF	Blueberry Hill, Douglas Is.	1387-64177	6/29/93	94,95,96,97	alive	T,N	N	N	N	N	N	moved 18.4 km in 96, new mates 96&97
93PBAF	Point Bridget, Juneau	1387-64178	7/6/93	94	?		T,N	N,L	U	U	U	moved 24.0 km in 94, new mate. lost 10/94
93BJAF	Big John Crk., Kupreanof Is.	1387-64181	7/13/93	94	?		T,N	N,L	U	U	U	moved 43.0 km in 94, new mate. lost 10/94
93ECAF	Eagle Crk., Douglas Is.	1387-64182	7/23/93	94,95,96,97	alive		T,N	N	N	N	N	moved 3.2 km in 94, new mates 94, & 96
93RNAF	Rowan Crk., Kuiu Is.	1387-64183	7/28/93	95	alive		T,N	N	N	X	N	moved 9.8 km in 94; new mate in 94
94MCAF	Mitchell Crk., Kupreanof Is.	1387-64192	7/8/94		?			T,N,L	U	U	U	lost 10/94, dropped tag
94MPAF	Mountain Point, Kupreanof Is.	1387-64193	7/10/94		dead			T,N	D			died 4/95
94CCAF	Cat Crk., Cape Fanshaw	1387-64195	7/13/94		?			T,N,L	U	U	U	lost 8/94
94TRAF	Traitors River, Revilla Is.	1387-64200	7/21/94	95	dead			T,N	N	D		died 3/96
95RRAF	Rio Roberts Crk., P.O.W. Is.	1387-64205	6/29/95		dead				T,N	D		died 3/96
95WPAF	West Bay of Pillars, Kuiu Is.	1387-64206	7/7/95	96	alive				T,N	N,L	U	moved 28.0 km in 96, new mate. lost 2/97
95PRAF	Pavlof River, Chichagof Is.	1387-84716	7/28/95		alive				T,N	X	X	
95WSAF	Whitestone, Chichagof Is.	1387-84719	8/16/95		?				T,N,L	N,L	U	tag failed 11/95, visual of female w/ failed tag 6/96.
96MLAF	Margaret Lake, Revilla Is.	1387-84709	6/25/96	97	alive				T,N	N		moved 3.2 km in 97, same mate
96CTAF	Cutthroat Creek, P.O.W. Is.	1387-84710	7/1/96	97	alive				T,N	N		moved 152 km in 97, new mate
96FBAF	Florence Bay, Chichagof Is.	1387-84721	7/16/96		alive				T,N	S		stationary signal as of 4/97
97RBAF	Ready Bullion Crk., Douglas Is.	1387-84724	6/25/97		alive					T,N		
97NCAF	Nugget Creek, Juneau	1387-84725	6/27/97		alive						T,N	
97BBAF	Blueberry Hill, Douglas Is.	1387-84726	7/2/97		alive						T,N	
97CTAF	Cutthroat Creek, P.O.W. Is.	1807-41992	7/3/97		alive						T,N	
97CEAF	Camp Carl, Etolin Island	1807-41994	7/18/97		alive						T,N	

T = first year radiotagged

N = nested this year

X = did not nest

S = stationary signal

L = signal lost

D = died

U = status unknown

Table 4. Status of adult male goshawks captured and radiotagged in Southeast Alaska, 1992-97

Band	Location	Band #	First Captured	Recaptured	12/97 Status	1992	1993	1994	1995	1996	1997	Comments
92SLAM	Sarkar Lake, P.O.W. Island	1807-41951	6/10/92		dead	T,N	D					died 3/93
92RBAM	Ready Bullion Crk., Douglas Is.	1807-41953	7/2/92		?	T,N,L	U	U	U	U	U	lost 9/92
93BBAM	Blueberry Hill, Douglas Is.	1807-41956	6/29/93	94, 95	?		T,N	N	N	X,L	N	radio failed 11/96, visual of male with failed tag 5/97
93NCAM	Nugget Crk. Juneau	1807-41957	7/1/93	94	?		T,N	N	L	U	U	radio failed, lost 10/95
93PBAM	Point Bridget, Juneau	1387-64179	7/6/93		?		T,N	L	U	U	U	radio failed, lost 3/94
93BJAM	Big John Crk., Kupreanof Is.	1807-41962	7/13/93		?		T,N	L	U	U	U	lost 3/94
93ECAM	Eagle Crk., Douglas Is.	1807-41963	7/23/93		?		T,N	X, L	U	U	U	radio failed, lost 12/94
93RNAM	Rowan Crk., Kuiu Is.	1807-41964	7/28/93		dead		T,N	X	D			died 3/95
93LJAM	Logjam Crk., P.O.W. Is.	1807-41965	8/4/93		dead		T,N,D					died 11/93
93MIAM	Petersburg, Mitkof Is.	1807-41969	12/28/93		?		T	L	U	U	U	tagged 12/93, dropped tag 7/94
93HCAM	Butterball Lake, Heceta Is.	1807-41970	6/17/94		dead			T,N	D			presumed dead 8/95
94FCAM	Fish Crk., Douglas Is.	1807-41971	6/24/94	95	dead			T,N	N,D			died 10/95
94LRAM	Lace River, Juneau Mainland	1807-41972	6/27/94		?			T,N	L	U	U	tag failed 10/95, breeding status in 95 uncertain
94EPAM	East Bay of Pillars, Kuiu Is.	1807-41973	7/1/94	95	dead			T,N	N	D		died 4/96
94MPAM	Mountain Pt., Kupreanof Is.	1807-41974	7/10/94		?			T,N,L	U	U	U	lost 10/94
94SPJM	Sunny Point, Juneau	1807-41976	12/31/94	96	alive			T	L	TN	N	tagged as imm. winter 94, recaptured & tagged in 96
95TRAM	Traitors River, Revilla. Is.	1807-41975	6/27/95		?				T,N	L	U	lost 1/96
95RRAM	Rio Roberts Crk., P.O.W. Is.	1807-41984	6/29/95	96,97	alive				T,N	N	N	moved 2.7 km in 96, 1.6 km in 97; new mate in 97
95WPAM	West Bay of Pillars, Kuiu Is.	1807-41985	7/7/95		dead				T,N	D		died 4/96
95MCAM	Mitchell Crk., Kupreanof Is.	1807-41986	7/9/95		dead				T,N	D		died 4/96
96MLAM	Margaret Lake, Revilla. Is.	1807-41988	6/25/96	97	alive					T,N	N	moved 2 miles in 97, same mate
96GCAM	Green Cove, Admiralty Is.	1807-41977	7/11/96		dead					T,N	D	died between 11/13/96 and 5/2/97
96FBAM	Florence Bay, Chichagof Is.	1807-41978	7/15/96		?					T,N,L	U	radio failed 8/96
97RBAM	Ready Bullion Crk., Douglas Is.	1807-41983	6/25/97		alive						T,N	
97GCAM	Green Cove, Admiralty Is.	1807-57817	7/11/97		alive						T,N	
97CEAM	Camp Carl, Etolin Island	1807-41994	7/17/97		?						N	banded at nest site in 97, no radiotag

T = first year radiotagged  
 N = nested this year  
 X = did not nest  
 S = stationary signal  
 L = signal lost  
 D = died  
 U = status unknown

**Table 5 Productivity of goshawk nest sites in Southeast Alaska 1991-97<sup>a, b</sup>**

Nest Site	# Young Observed						
	1991	1992	1993	1994	1995	1996	1997
<b>Ketchikan Area</b>							
Butterball Lake, Heceta Island				3			
Carroll Inlet, Revillagigedo							2
Cutthroat Creek, P.O.W. Island						1	2
Convenient Cove, Hassler Island				2			
Logjam Creek, P.O.W. Island			1				
Margaret Lake, Revillagigedo Island				2		1	2
Port Refugio, Suemez Island (1989)				0			
Rio Roberts Creek, P.O.W. Island					2		
Sarheen Creek, P.O.W. Island	2						
Sarkar Lake, P.O.W. Island		2					
Timber Knob, Heceta Island						2	3
Traitors Creek, Revillagigedo Island				3	2		
Twelvemile Arm, P.O.W. Island							
<b>Stikine Area</b>							
Big John Creek, Kupreanof Island		2	1				
Camp Carl, Etolin Island							2
Cat Creek, Cape Fanshaw				2			
Deer Island							1
Duncan Creek, Kupreanof Island				3			
East Bay of Pillars, Kuiu Island				3	3		1
Irish Lake, Kupreanof Island						2	
Kadake Bay, Kuiu Island						0	
Mitchell Creek, Kupreanof Island				3	1		
Mountain Point, Kupreanof Island				2			
Negro Creek, Port Houghton				3			
Rowan Creek, Kuiu Island			2				
Sanborn Canal, Port Houghton				2			
Security Bay, Kuiu Island							2
Starfish, Etolin Island	2						
Totem Camp, Kupreanof Island				2			
Upper Totem, Kupreanof Island							
West Bay of Pillars, Kuiu Island				2	1		
<b>Chatham Area</b>							
Blueberry Hill, Douglas Island			2	2	2		2
Distin Lake Trail, Admiralty Island				2			0
Eagle Creek, Douglas Island			2				
Eagle River, Juneau Mainland							2
Fish Creek, Douglas Island				3	1	2	2
Green Cove, Admiralty Island						2	3
Florence Bay, Chichagof Island						2	
Lace River, Berners Bay				1			
Mud Bay River, Chichagof Island			3	2			
Nugget Creek, Mendenhall Glacier			3	3			3
Pavlof River, Chichagof Island					3		
Point Bridget, Echo Cove		2	2				
Ready Bullion, Douglas Island	2	1					2
Duffield Peninsula, Baranof Island				3	2	3	
Turner Lake, Juneau Mainland							3
Whitestone, Chichagof Island					3	0	
<b>TOTAL # of young observed</b>	<b>6</b>	<b>7</b>	<b>16</b>	<b>48</b>	<b>20</b>	<b>15</b>	<b>32</b>
<b>TOTAL # of active nest areas</b>	<b>3</b>	<b>4</b>	<b>8</b>	<b>21</b>	<b>10</b>	<b>10</b>	<b>16</b>
<b>MEAN # young/nest</b>	<b>2.0</b>	<b>1.8</b>	<b>2.0</b>	<b>2.3</b>	<b>2.0</b>	<b>1.5</b>	<b>2.0</b>

<sup>a</sup> Productivity = number of fledglings when observed, otherwise = number of nestlings.

<sup>b</sup> Excludes 3 nest areas reported active prior to initiation of ADF&G study in 1991.

**Table 6 Northern goshawks captured in Southeast Alaska in 1997**

Nest Area	Age	Sex	Date	Band #/Leg	Tagged?	Previously Captured?
<b>Ketchikan Area, Tongass N.F.</b>						
Cutthroat Creek, P.O.W.	A	F	7/3/97	1807-	Y	no
Cutthroat Creek, P.O.W.	A	M	7/3/97	1807-	Y	Rio Roberts Creek 95.
Cutthroat Creek, P.O.W.	J	M	8/6/97	1807-	Y	no
Margaret Lake, Revilla.	A	F	6/30/9	1387-	Y	Margaret Lake 96
Margaret Lake, Revilla.	A	M	6/30/9	1807-	Y	Margaret Lake 96
Margaret Lake, Revilla.	J	M	8/12/9	1807-	Y	no
Timber Knob, Heceta Island	J	F	7/12/9	1807-	N	no
Timber Knob, Heceta Island	J	F	7/13/9	1387-	N	no
Timber Knob, Heceta Island	J	F	7/14/9	1807-	N	no
<b>Stikine Area, Tongass</b>						
Camp Carl, Etolin Island	A	F	7/17/9	1807-	Y	no
Camp Carl, Etolin Island	A	M	7/18/9	1807-	N	no
East Bay of Pillars, Kuiu	A	F	7/9/97	1387-	Y	Rowan Creek 93, East Pillars
East Bay of Pillars, Kuiu	J	M	7/8/97	1807-	N	no
Security Bay, Kuiu Island	A	F	7/11/9	1387-	Y	Cutthroat 96
<b>Chatham Area, Tongass N.F.</b>						
Back Loop, Rd., Juneau	I	M	5/29/9	1807-	N	no
Blueberry Hill, Douglas	A	F	7/2/97	1387-	Y	no
Blueberry Hill, Douglas	J	F	8/7/97	1387-	Y	no
Blueberry Hill, Douglas	J	M	8/14/9	1807-	N	no
Fish Creek, Douglas Island	A	F	7/3/97	1387-	Y	Eagle Crk. 93, Fish Crk.
Fish Creek, Douglas Island	A	M	7/3/97	1807-	Y	Sunny Point 94, Fish Creek
Fish Creek, Douglas Island	J	M	8/8/97	1807-	Y	no
Green Cove, Admiralty	A	F	7/11/9	1387-	Y	Blueberry 93,94,95, Green
Green Cove, Admiralty	A	M	7/11/9	1807-	Y	no
Green Cove, Admiralty	J	F	7/11/9	1387-	N	no
Green Cove, Admiralty	J	M	7/11/9	1807-	N	no
Nugget Creek, Juneau	A	F	6/27/9	1387-	Y	no
Nugget Creek, Juneau	J	M	7/26/9	1807-	N	no
Nugget Creek, Juneau	J	M	7/26/9	1807-	N	no
Ready Bullion Crk.,	A	F	6/25/9	1387-	Y	no
Ready Bullion Crk.,	A	M	6/25/9	1807-	Y	no
Ready Bullion Crk.,	J	M	7/31/9	1807-	N	no
Ready Bullion Crk.,	J	M	7/31/9	1807-	N	no

\* Goshawk found injured; rehabilitated and released.



**Table 7. Summary of activities at known goshawk nest areas in Southeast Alaska.**

**A. Ketchikan Area, Tongass N.F.**

Nest Area	Status
Butterball Lake, Heceta Island	Area first documented in 94; active nest observed this year only. Nest first located 5/16/94 by tracking adult female tagged in 92 at Sarkar Lake nest area to this new nest area, a distance of 27.0 km. Adult female and new male tagged 6/17/94. Three fledglings observed. One juvenile female tagged 8/1/94. Last signal for adult male on 8/31/94 on Heceta Is.. Remains of adult female recovered on 3/13/95 at Warmchuck Inlet on Heceta Is. No activity observed at nest area in 95, 96, or 97.
Carroll River, Revillagigedo Island	Area first documented in 97; active nest first observed this year. Adult male goshawk observed and vocalizations heard in area on 5/1/96, but active nest not located in subsequent searches that year. Active nest with two fledglings located 7/28/97.
Cutthroat Creek, Prince of Wales Island	Area first documented in 96; active nests observed in 96 and 97. Nest first located 6/23/96, 2.9 km from 95 Rio Roberts nest by tracking adult male from that site (Rio Roberts and Cutthroat Creek are technically the same nest area as they are used by the same adult male). Adult male and new female tagged on 7/1/96. Single fledgling male tagged on 8/8/96. New active nest located 7/1/97, 1.6 km from 96 nest. Same adult male and new female tagged on 7/3/97. Two nestlings observed. Fledgling male tagged on 8/6/97. Adult female that nested at this site in 96 nested with new mate at Security Bay, Kuiu Island in 97, a distance of 152 km from 96 Cutthroat Creek nest.
Convenient Cove, Hassler Island	Area first documented in 94; active nest observed this year only. Nest first located 7/26/94; two fledglings observed. Juvenile female tagged on 7/27/97. Adult goshawk(s) observed at site in 4/95 and 5/96 but active nest not located. No activity observed in 97.
Logjam Creek, Prince of Wales Island	Area first documented in 93; active nest observed this year only. Nest first located 8/2/93. Adult male and fledgling male tagged 8/4/93. Adult male found dead northeast of Sweetwater Lake, P.O.W. on 11/3/93. Univ. of Alaska Museum specimen #UAF 6502 Nest area checked 94-97, but no activity observed.
Margaret Lake, Revillagigedo Island	Area first documented in 94; active nests observed in 94, 96 and 97. Active and alternate nests first located 7/28/94; two fledglings observed. Goshawks observed at area in 95, but active nest not located. Active nest located 4/24/96 in alternate nest first located in 94. Adult female and male tagged 6/25/96. Single juvenile male tagged 8/5/96. New nest located in 97, 3.2 km from 96 nest by tracking adult female. Adult female and same mate retagged on 6/30/97. Two fledglings observed. Juvenile male tagged 8/12/97.
Port Refugio, Suemez Island	Area first documented in 89; active nests observed in 89 and 94. Nest first located by Forest Service timber layout crew in 7/89; adults and fledglings present. Area checked 90-97. No activity observed in 90 and 91. Goshawk(s) observed in 92 and 93, but active nest not located.

	Active nest located 4/6/94, but failed during egg laying/incubation. Intact, addled egg found on ground 50 m from nest tree on 6/15/94. Goshawk(s) observed at area in 95 and 96, but active nest not located. No activity observed in 97. Area contains first goshawk nest site documented by biologists in southeast Alaska.
Rio Roberts Creek, Prince of Wales Island	Area first documented in 95; active nest observed this year only. Nest first located 6/14/95. Adult female and male tagged 6/29/95. Three nestlings present; remains of one found beneath nest tree on 7/21/95. Female and male fledglings tagged 8/8/95. Mortality location of adult female confirmed 3/27/96 near Sweetwater Lake, P.O.W. Adult male moved 2.9 km to new nest at Cutthroat Creek in 96 and nested with new mate. 95 nest inactive in 96 and 97.
Sarheen Creek, Prince of Wales Island	Area first documented in 91; active nest not located in this or subsequent years. Two fledglings and adults observed 8/91. Inactive nests located later < 1.6 km away. Area check 92-97. Goshawks observed in vicinity in 92 and 93, but no nesting activity observed. No activity observed 94-97.

**Table 7 Continued****A. Ketchikan Area, Tongass N.F.**

Sarkar Lake, Price of Wales Island	Area first documented in 92; active nest located in this year only. Nest first located 5/16/92. Adult female and male tagged 6/10/92. Two fledgling males tagged on 7/28/92. Mortality location of adult male confirmed at Shipley Bay, Kosciusko Island on 3/10/93. Adult female wintered on Zarembo Is. in 92/93. She did not nest in 93 but was relocated and observed at Butterball Lake on Heceta Is. In 94 she nested with a new mate at this site after wintering again on Zarembo Is. in 93/94. No activity observed at Sarkar Lake area in 93 or 94. An adult male responded to playback calls in adjacent stand in 95. No activity observed in 96 or 97.
Timber Knob, Heceta Island	Area first documented in 96; active nests observed in 96 and 97. Nest first located 7/13/96; two fledglings observed. New nest located on 7/15/97 ~400 m from 96 nest. Three fledglings banded 7/22/97.
Traitors Creek, Revillagigedo Island	Area first documented in 94; active nests observed 94 and 95. Nest first located on 7/18/94. Adult female tagged 7/21/94; three fledglings observed. New nest located 4/25/95 ~100 m from 94 nest by tracking adult female. Adult female retagged and male tagged on 7/27/95. Two fledglings present 8/11/95; juvenile female tagged. Last signal for adult male 1/23/96 at Orchard Creek, Revillagigedo Is. Mortality location of adult female confirmed on 5/1/96 near Carroll River, Revillagigedo Is. No activity observed at nest area in 96 or 97
Twelevemile Arm, Prince of Wales Island	Area first documented in 96; active nest not located in this or following year. Inactive nest located 7/96. Nest confirmed on 8/20/96 when tree was climbed and goshawk feathers and prey remains were collected. No activity observed in 97.

Table 7 Continued

## B. Stikine Area, Tongass N.F.

Nest Area	Status
Big John Creek, Kupreanof Island	Area first documented in 92; active nests observed in 92 and 93. Nest first located 8/6/92. Two fledgling females banded 8/12/92. New active nest located 6/15/93, 150m from 1992 nest. Adult female and male tagged 7/13/93. Fledgling female tagged 8/19/93. Fledgling male found dead 125 m from nest via leg-mounted transmitter attached to nestling 7/13/93. Last signal for adult male on 3/23/94. In 94 adult female nested with new mate at West Bay of Pillars, Kuiu Island site, a distance of 43.0 km from the Big John Creek nest. No activity observed at Big John Creek area in 93, 94, or 95. Area not checked in 96. No activity observed in 97.
Cat Creek, Cape Fanshaw	Area first documented in 94; active nest observed this year only. Nest located 7/94; two fledglings observed. Adult female tagged 7/13/94; last signal on 8/19/94. No activity observed in 95. Freshly constructed nest located on 6/6/96 but no other indication of nesting activity observed. Area not checked in 97.
Camp Carl, Etolin Island	Area first documented in 97; active nest this year only. Adult female and male captured on 7/18/97; female banded and tagged, male banded only. Two fledglings observed. This area is ~6.0 km from the Starfish, Etolin Is. area.
Kuakan, Deer Island	Area first documented in 97; active nest observed this year only. Adult goshawk responded to playback recordings on 6/26/97. Nest located on 7/1/97; one fledgling observed.
Duncan Creek, Kupreanof Island	Area first documented in 94; active nest observed in 94. Nest located 8/10/94; three fledglings observed. Juvenile female tagged 8/11/94. No activity observed in 95. Hairy woodpecker pluck found at base of nest tree 7/18/96, nest inactive. Adult observed at area after it responded to playback call in 7/97, but active nest not located.
East Bay of Pillars, Kuiu Island	Area first documented in 94; active nests observed in 94, 95, and 97. Nest first located on 6/16/94 by tracking 93 Rowan Creek adult female to this new nesting area. East Bay of Pillars nest is 11 km from Rowan Creek nest. Adult female retagged on 7/1/94; two nestlings observed. New nest located 5/19/95 ~100 m from 94 nest by tracking adult female. Adult female and male tagged on 7/6/95; three nestlings observed. Area not checked in 96. During spring and summer of 96 adult female resided in vicinity of Duncan Canal, Kupreanof Island but did not nest. Last signal for adult male was on 11/22/95 on Kuiu Is.. New active nest located 6/4/97 0.8 km from 95 nest. Single prefledgling male found on ground ~50 m from nest tree on 7/8/97. Bird banded and returned to nest. Adult female (same as 94 and 95) tagged on 7/9/97. Adult male not observed and his identity is unknown.
Irish Lake, Kupreanof Island	Area first documented in 96; active nest observed this year only. Two fledglings observed on 7/25/96. Nest first located on 7/28/96. Adult

Nest Area	Status
	goshawk observed feeding on squirrel at site in 6/97. Active nest not located this year.
Kadake Bay, Kuiu Island	Area first documented in 96; active nest observed this year only. Nest first located on 7/15/96 by tracking the tagged 95 West Bay of Pillars adult female to a new nest area. The Kadake Bay nest is 28 km from the West Bay of Pillars nest. Remains of single prefledging nestling found on ground ~50 m from nest tree. Last signal for adult female on 2/4/97 on Kuiu Is.
Kake, Kupreanof Island	Area first documented in 89; active nest located this year only. Two nestlings and an unhatched egg were recovered on 6/23/89 when the nest tree was cut during timber harvest on native owned land near Kake. The young were raised at the Alaska Raptor Rehabilitation Center in Sitka and released there as fledglings.

**Table 7 Continued**

**B. Stikine Area, Tongass N.F.**

Mitchell Creek, Kupreanof Island	Area first documented in 94; active nests observed in 94 and 95. Nest first located on 6/5/94. Adult female tagged on 7/8/94; three fledglings observed. Juvenile female banded on 7/11/94. Last location for adult female on 10/12/94 on Kupreanof Is.; dropped tailmount transmitter. New active nest located 6/95 ~250 m from 94 nest. Adult male tagged on 7/8/95; two nestlings observed. Adult female at site not trapped; presumably same as in 94 (band). No activity observed at area in 96. Remains of adult male tagged in 95 recovered on north Zarembo Island on 4/18/96. No activity observed at nest area in 97.
Mossman Inlet, Etolin Island	Area first reported by Forest Service cruiser in 86; active nest observed this year only. Nest inactive in 92 and 93. Area not checked in 94, 95, 96, or 97.
Mountain Point, Kupreanof Island	Area first documented in 94; active nest observed this year only. Nest first located on 6/21/94. Adult female and male tagged on 7/10/94; two fledglings observed. Juvenile female tagged on 8/10/94. Adult female found dead in nest area on 5/9/95; Univ. of Alaska Museum specimen # UAM 6712. Adult male's tail-mounted transmitter signal stationary, then failed in 12/94. Status of bird unknown. No activity observed at site in 95. Site not checked in 1996. No activity observed in 97.
Nergo Creek, Cape Fanshaw	Area first documented in 94; active nest observed this year only. Nest first located on 6/21/94; three nestlings observed. Area occupied by adults in 95 but active nest not located. Area checked 6/6/96, but no nesting activity observed. Area not checked in 97.
Rowan Creek, Kuiu Island	Area first documented in 93; active nest observed this year only. Nest first located on 6/21/93; two fledglings observed. Adult female and male tagged on 7/28/93. Two juvenile females tagged on 8/16-17/93. In 94 the adult female moved a distance of 9.8 km to East Bay of Pillars, Kuiu Is. area and nested with a new mate. 1993 Rowan Creek adult male remained on territory in 94 but no nesting activity was detected. This birds remains were recovered at Rowan Bay on 5/18/95. A silent unmarked adult male was observed at the 93 nest area on 7/18/95 after broadcast of playback recordings. No activity observed at area in 96. In 6/97 an adult female and male were observed vocalizing aggressively in response to playback recordings ~400 m south of 93 nest site. Active nest not located.
Sanborn Canal, Cape Fanshaw	Area first documented in 94; active nest observed this year only. Nest first located on 7/18/94; two fledglings observed. No activity observed in 95. Area checked on 6/7/96, but no activity observed. Area not checked in 97.
Security Bay, Kuiu Island	Area first documented in 97; active nest observed this year only. Nest first located on 6/6/97 by tracking the radiotagged 96 Cutthroat Creek, Prince of Wales Is. adult female to this new area, a distance of 152 km, where she nested with a new mate. Adult female retagged on 7/11/97;

	adult male not captured; two nestlings also observed on this date.
Starfish, Etolin Island	Area first documented in 1991; active nest observed this year only. Two young and adults present in 91. Area checked 92-95, but no nesting activity observed. Area not checked in 96. Area checked but no nesting activity observed in 97.
Totem Camp, Kupreanof Island	Area first documented in 94; active nest observed this year only. Nest first located 8/1/94; two fledglings observed. No nesting activity detected in 95. Area not checked in 1996. No activity observed in 97.
Upper Totem Creek, Kupreanof Island	Area first documented in 93; active nest not located in this or subsequent years. Two inactive nests located on 7/12-13/93. No activity observed in 94 or 95. Area not checked in 96. One adult goshawk observed in 97 but active nest not located.

**Table 7 Continued**

**C. Chatham Area, Tongass N.F.**

Nest Areas	Status
West Bay of Pillars, Kuiu Island	Area first documented in 94; active nests observed in 94 and 95. Nest first located on 6/17/94 by tracking adult female tagged at 93 Big John Creek, Kupreanof Is. nest to this new nest area. Distance between Big John Creek and West Bay of Pillars nests is 43 km. Adult female retagged on 6/30/94; two nestlings observed; adult male not captured. Last signal for adult female on 10/7/94; status of this bird is unknown. New active nest in snag located on 7/7/95 ~150 m from the 94 nest; one nestling observed. New adult female and unmarked male tagged on 7/7 and 7/8/95, respectively. Remains of adult male recovered on 7/10/96 at Rowan Bay, Kuiu Island. Adult female moved to new nest area at Kadake Bay, Kuiu Is. in 96; identity of new mate at this site unknown. West Bay of Pillars nest area not checked in 96. Adult male of unknown identity responded to playback recordings at the area on 7/8/97 but active nest not located. 1995 nest tree snag was observed to be blown down on this date.
Blueberry Hill, Douglas Island	Area first documented in 1993; active nests observed in 93, 94, 95 and 97. Adult female and male first tagged on 6/29/93. This pair occupied and nested in this area in 93, 94, and 95, producing a total of 6 young (2 each year). One of these young, a fledgling female, was tagged on 8/13/93. No sign of activity was observed at this area in 96 after the adult female moved 18.5 km to the Green Cove, Admiralty Island area and nested with a new mate. The adult male's radio failed 11/96. A new unmarked adult female was located incubating eggs in the 94 Blueberry Hill nest on 5/13/97. An adult male wearing a failed radio was also observed here on this date and is presumed to be the original male from this site. Adult female was tagged 7/2/97, but the adult male was not recaptured. Two fledglings were observed. A juvenile female was tagged on 8/7/97 and a juvenile male on 8/14/97.
Dewey Lake Trail, Skagway, Mainland	Area was reported active in 85; active nest not located but fledglings and aggressive adults present this year. Area not checked 91-97.
Distin Lake, Admiralty Island	Area first documented in 94; active nests located in 94 and 97. Nest first located on 7/13/94; two fledglings and aggressive adult observed. Area not checked in 95 or 96. Active nest with incubating female located on 6/5/97 (latest documented date for incubation in 97). Site was found to have failed during incubation period when visited again on 7/16/97. One broken egg and one addled egg collected from nest platform.
Duffield Peninsula, Barinof Island	Area first documented in 94; active nest located in 94, 95, and 96. Nest first located on 7/3/94 when aggressive adult and three fledglings were observed. Same nest occupied three consecutive years (94-96). Two fledglings observed in 95 and three in 96. In 96, two fledgling females and one male were banded; one juvenile female was also tagged. No nesting activity was observed in 97.



Nest Areas	Status
Eagle Creek, Douglas Island	Area first documented in 93; active nest located this year only. Nest first located on 7/14/93; two nestlings observed on this date. Adult female and male tagged on 7/23/93. Two male fledglings tagged on 8/13/93. Adult female moved 3.2 km to Fish Creek, Douglas Is. area in 94 and nested with new mate. 93 adult male's transmitter failed in 12/94. No nesting activity documented in 94, 95, 96, or 97.
Eagle River, Juneau, Mainland	Area first documented in 97; site active this year but nest not located. Area documented after ADF&G biologist reported multiple goshawk sightings during two day period in early August. Although no nest was located in 97, fledgling goshawks were also observed here during a two week period in mid August. Site fledged at least two young.

**Table 7 Continued**

**C. Chatham Area, Tongass N.F.**

Nest Areas	Status
Fish Creek, Douglas Island	Area first documented in 94; active nests located in 94, 95, 96, and 97. Nest first located by tracking adult female from the Eagle Creek, Douglas Is. area, a distance of 3.2. km This female nested at this area 94-97 and was captured and tagged each year. Her 94 and 95 mate was tagged on 6/24/94 and died 10/95. This adult male was replaced in 96 and 97 by a 2-year-old male originally captured and banded as an immature bird on 12/31/94 while raiding domestic waterfowl at Sunny Point, Juneau. A total of eight young were observed at this nest area between 94 and 97. Five of these young were tagged as fledglings during this period, including two females on 8/2/94, one female on 8/1/95, one male on 8/7/96, and one male on 8/8/97.
Florence Bay, Chichagof Island	Area first documented in 96; active nest located this year only. Adult female and male tagged on 7/15-16/96. One fledgling male banded on 7/25/96. Adult male's transmitter is believed to have failed during the fall of 96. Female's transmitter signal has been stationary since 4/97. No sign of nesting activity in 97.
Green Cove, Admiralty Island	Area first documented in 96; active nests located in 96 and 97. Nest first located by following the radiotagged 93-95 Blueberry Hill, Douglas Is. adult female to this new breeding territory, a distance of 18.5 km, where she nested with new mates in 96 and 97. The female and 96 male were tagged on 7/11/96. This male died during the winter of 96/97. An active alternate nest site was located in 97, 2.4 km from the 96 nest. On 7/11/97, the female and a new adult male were tagged and two nestlings were banded. Both young were also observed as fledglings.
Lace River, Mainland	Area first documented in 94; active nest located this year only. Nest first located by following the tagged 93 Point Bridget, Juneau mainland adult female to this new area, a distance of 24.5 km, where she nested with a new mate in 94. Adult female and male tagged on 6/27/94; one nestling observed. The adult female could not be relocated after 10/94. The adult male apparently did not nest in 95 and could not be relocated after 10/95. Area checked in 95, 96, and 97 but no activity observed.
Mud Bay River, Chichagof Island	Area first documented in 93; area active but nest not located in 93; active nest located in 94. Three fledglings observed 8/10-11/93; two fledglings observed late July and early August of 94. No nesting activity observed in 95 or 97. Area not checked in 96.
Nugget Creek, Juneau Mainland	Area first documented in 94; active nests located in 93, 94, and 97. Nest first located by tracking adult female tagged on 3/18/92 at Sunny Point, Juneau after she was caught raiding domestic waterfowl. This adult female and her mate were tagged at nest site on 7/1/93. Three nestlings were observed on this date and two fledgling females were subsequently tagged on 8/9/93. New active nest located in 94 ~300 m from 93 nest. Adult female and male recaptured on 6/24/94; two nestlings observed,

Nest Areas	Status
	both fledged successfully. Adult female died 2/95. The adult male remained on territory but is believed not to have nested 95. His radio failed 10/95. No activity was observed at this area in 96. On 5/30/97 an unmarked adult female was observed incubating in the 93 nest. This bird was tagged on 6/27/97. Her mate was not captured and his identity is unknown. Three nestlings were observed and all three fledged successfully; two fledgling males were captured and banded on 7/26/97.
Pavlof River, Chichagof Island	Area first documented in 95; active nest located this year only. Adult female tagged on 7/28/95; adult male was not captured. Three fledglings observed. One female fledgling tagged on 7/27/95. The adult female remained in the nest area vicinity in 96 and 97 but did not nest in either year.

**Table 7 Continued**

**C. Chatham Area, Tongass N.F.**

Nest Areas	Status
Point Bridget, Juneau Mainland	Area first documented in 92; active nests located in 92 and 93. Nest first located in 92 when two fledglings were observed. Adult female and male tagged at an active alternate nest on 7/6/93. Two nestlings observed and both (males) were tagged as fledglings on 8/16/93. The adult female moved 24.5 km to the Lace River, Mainland area in 94 and nested with a new mate. The 93 adult male's radio failed 3/94 and his status is unknown. No nesting activity was observed at this area in 94, 95, 96, or 97 despite numerous goshawk observations and responses to playback recordings.
Ready Bullion, Douglas Island	Area first documented in 91; active nests located in 91, 92, and 97. Two fledglings and active nest observed in 91. Adult female and male tagged at active alternated nest on 7/2/92. Single fledgling female tagged on 8/6/92. Adult female's radio signal was stationary during 9/92 and she is presumed dead. The adult male's signal was lost also during 9/92 and his status is unknown. The site was found active again on 4/11/97 when an unmarked adult male was observed reconstructing the 91 nest. An unmarked adult female was observed incubating in this nest on 5/13/97. Both adults were tagged on 6/25/97. Two nestlings were observed. Both (males) were tagged as fledglings on 7/31/97. Although no nesting activity was observed during 93, 94, 95, or 96, an alternate nest possibly active in 93 or 94 was located in 96.
Turner Lake, Mainland	Area first documented in 96; adults and fledglings observed in 8/96 but nest not located; active nest located in 97. Active nest with three older nestlings and one inactive nest were located on 6/17/97. A very early site with all nestlings fledged by 6/29/97. No goshawks were captured at this site in 97.
Whitestone, Chichagof Island	Area first documented in 95; active nests located in 95 and 96. Adult female tagged on 8/16/95. Three fledglings were observed and one of these, a female, was tagged on 8/4/95. The adult female's radio failed during 10/95; however, an adult female wearing a failed radio was observed at this site incubating or brooding on 6/3/96 and is presumed to be the same bird. This 96 nest failed during the fledgling dependency period. No indication of nesting activity was observed in 97, although fresh prey remains were found in the nest stand.

**Table 8 Goshawks banded in Southeast Alaska, 1992-97**

#	Date	Location	Age	Sex	Band #	Leg	Tag?	Recaptured	Status
1	2/10/92	Sunny Point, Juneau	A	F	1387-	L	Y	93,94	dead
2	3/10/92	Sunny Point, Juneau	I	F	1387-	?	N		?
3	6/10/92	Sarkar Lake, P.O.W. Island	A	F	1387-	R	Y	94	dead
4	6/10/92	Sarkar Lake, P.O.W. Island	A	M	1807-	L	Y		dead
5	6/29/92	Sarkar Lake, P.O.W. Island	J	M	1807-	R	Y		?
6	7/2/92	Ready Bullion Crk.,	J	F	1387-	R	Y		dead
7	7/2/92	Ready Bullion Crk.,	A	F	1387-	R	Y		dead
8	7/2/92	Ready Bullion Cr., Douglas	A	M	1807-	R	Y		?
9	7/28/92	Sarkar Lake, P.O.W. Island	J	M	1807-	L	Y		?
10	8/12/92	Big John Crk., Kupreanof	J	F	1387-	R	N		?
11	8/12/92	Big John Crk., Kupreanof	J	F	1387-	L	N		?
12	8/14/92	Falls Crk., Mitkof Island	J	M	1807-	L	N		?
13	9/8/92	Hungary Point, Mitkof	I	F	1807-	R	Y		dead
14	6/29/93	Blueberry Hill, Douglas	A	F	1387-	L	Y	94,95,96,97	alive
15	6/29/93	Blueberry Hill, Douglas	A	M	1807-	R	Y	94,95	alive
16	7/1/93	Nugget Crk., Juneau	A	M	1807-	R	Y	94	?
17	7/6/93	Point Bridget, Juneau	A	F	1387-	R	Y	94	?
18	7/6/93	Point Bridget, Juneau	A	M	1387-	L	Y		?
19	7/13/93	Big John Crk., Kupreanof	A	F	1387-	L	Y	94	?
20	7/13/93	Big John Crk., Kupreanof	J	M	1807-	L	Y		dead
21	7/13/93	Big John Crk., Kupreanof	A	M	1807-	R	Y		?
22	7/23/93	Eagle Crk., Douglas Island	A	F	1387-	L	Y	94,95,96,97	alive
23	7/23/93	Eagle Crk., Douglas Island	A	M	1807-	R	Y		?
24	7/28/93	Rowan Crk., Kuiu Island	A	F	1387-	L	Y	95,96,97	alive
25	7/28/93	Rowan Crk., Kuiu Island	A	M	1807-	R	Y		dead
26	8/4/93	Logjam Crk., P.O.W. Island	A	M	1807-	R	Y		dead
27	8/4/93	Logjam Crk., P.O.W. Island	J	M	1807-	L	Y		?
28	8/9/93	Nugget Crk., Juneau	J	F	1387-	L	Y		?
29	8/9/93	Nugget Crk., Juneau	J	F	1387-	R	Y		?
30	8/13/93	Blueberry Hill, Douglas	J	F	1387-	R	Y		?
31	8/13/93	Eagle Crk., Douglas Island	J	M	1807-	R	Y		?
32	8/13/93	Eagle Crk., Douglas Island	J	M	1807-	L	Y		?
33	8/16/93	Rowan Crk., Kuiu Island	J	F	1387-	R	Y		dead
34	8/16/93	Point Bridget, Juneau	J	M	1807-	L	Y		?
35	8/16/93	Point Bridget, Juneau	J	M	1807-	R	Y		dead
36	8/17/93	Rowan Crk., Kuiu Island	J	F	1387-	L	Y		?
37	8/19/93	Big John Crk., Kupreanof	J	F	1387-	R	Y		dead
38	12/28/9	Petersburg, Mitkof Island	A	M	1807-	L	Y		?
39	6/17/94	Butterball Lake, Heceta	A	M	1807-	L	Y		?
40	6/24/94	Fish Crk., Douglas Island	A	M	1807-	R	Y	95	dead
41	6/27/94	Lace River, Juneau	A	M	1807-	L	Y		?
42	7/1/94	East Bay of Pillars	A	M	1807-	R	Y	95	dead
43	7/8/94	Mitchell Crk., Kupreanof	A	F	1387-	R	Y		?
44	7/8/94	Mitchell Crk., Kupreanof	J	F	1387-	R	N		?
45	7/10/94	Mountain Point, Kupreanof	A	F	1387-	R	Y		dead
46	7/10/94	Mountain Point, Kupreanof	A	M	1807-	L	Y		?
47	7/13/94	Cat Crk., Cape Fanshaw	A	F	1387-	R	Y		?

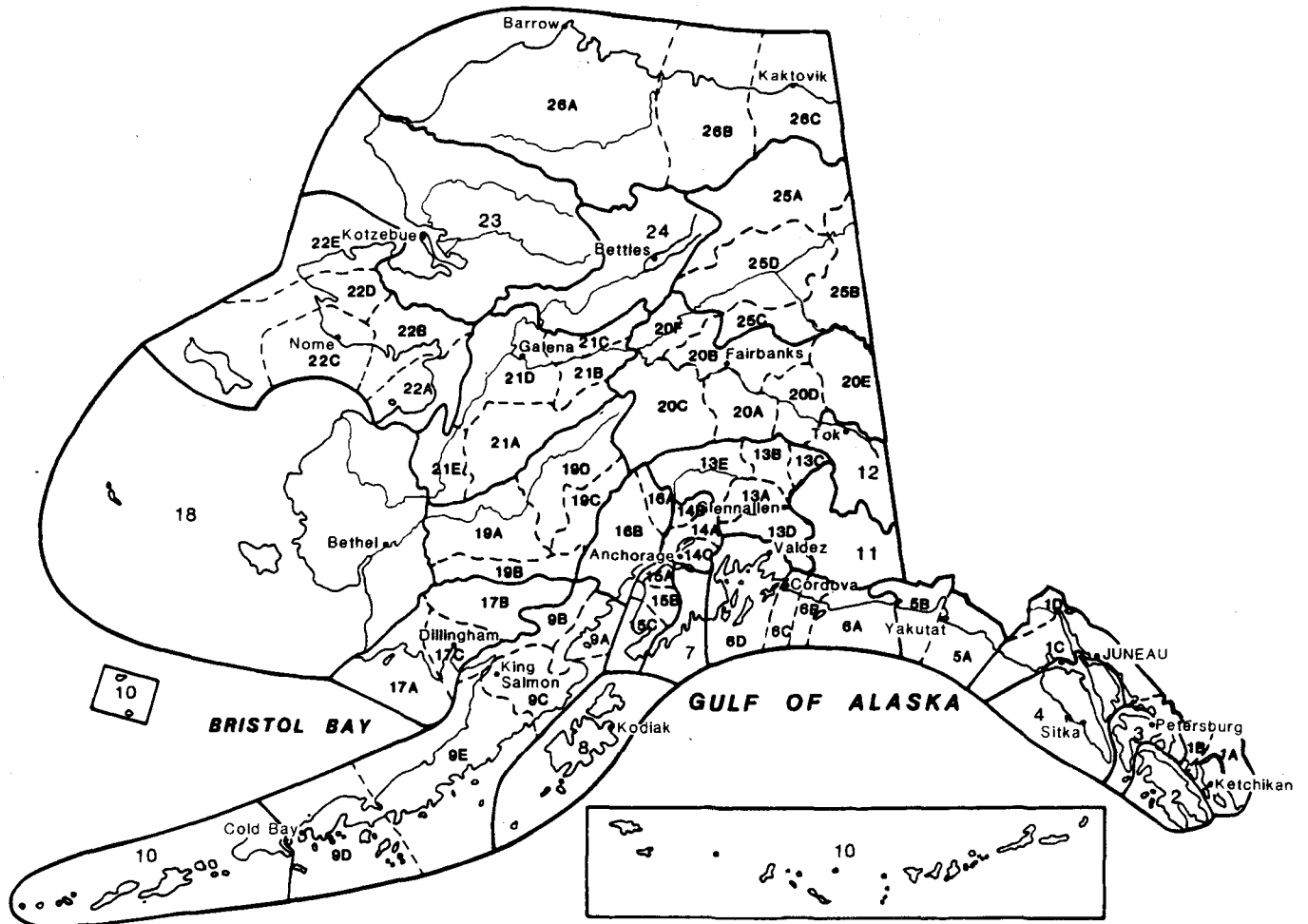
Table 8 Continued

#	Date	Location	Age	Sex	Band #	Leg	Tag?	Recaptured	Status
48	7/21/94	Traitors Crk., Revillagigedo	A	F	1387-	R	Y	95	dead
49	7/27/94	Convenient Cove, Hassler	J	F	1387-	L	Y		?
50	8/1/94	Butterball Lake, Heceta	J	F	1387-	R	Y		?
51	8/2/94	Fish Crk., Douglas Island	J	F	1387-	R	Y		?
52	8/2/94	Fish Crk., Douglas Island	J	F	1387-	R	Y		?
53	8/10/94	Mountain Point, Kupreanof	J	F	1387-	R	Y		dead
54	8/11/94	Duncan Crk., Kupreanof	J	F	1387-	R	Y		dead
55	8/17/94	West Bay of Pillars, Kuiu	J	F	1387-	R	Y		?
56	11/9/94	Sunny Point, Juneau	I	F	1387-	R	Y		dead
57	12/31/9	Sunny Point, Juneau	I	M	1807-	R	Y	96,97	alive
58	2/3/95	Vallenar Point, Gravina	I	F	1807-	R	N		?
59	6/27/95	Traitors Crk., Revillagigedo	A	M	1807-	L	Y		?
60	6/29/95	Rio Roberts Crk., P.O.W.	A	F	1387-	R	Y		dead
61	6/29/95	Rio Roberts Crk., P.O.W.	A	M	1807-	L	Y	96,97	alive
62	7/7/95	West Bay of Pillars, Kuiu Is.	A	F	1387-	R	Y		?
63	7/7/95	West Bay of Pillars, Kuiu Is.	A	M	1807-	L	Y		dead
64	7/9/95	Mitchell Crk., Kupreanof	A	M	1807-	L	Y		dead
65	7/27/95	Pavlof River, Chichagof Is.	J	F	1387-	R	Y		?
66	7/28/95	Pavlof River, Chichagof Is.	A	F	1387-	R	Y		
67	8/1/95	Fish Creek, Douglas Island	J	F	1387-	R	Y		?
68	8/4/95	Whitestone, Chichagof	J	F	1387-	R	Y		?
69	8/8/95	Rio Roberts Crk., P.O.W.	J	F	1387-	L	Y		?
70	8/8/95	Rio Roberts Crk., P.O.W.	J	M	1807-	R	Y		?
71	8/11/95	Traitors Crk., Revillagigedo	J	F	1807-	R	Y		?
72	8/16/95	Whitestone, Chichagof	A	F	1387-	R	Y		?
73	6/25/96	Margaret Lake, Revilla.	A	F	1387-	R	Y		alive
74	6/25/96	Margaret Lake, Revilla.	A	M	1807-	L	Y		?
75	7/1/96	Cutthroat Creek, P.O.W. Is.	A	F	1387-	R	Y	97	alive
76	7/11/96	Green Cove, Admiralty	A	M	1807-	L	Y		dead
77	7/15/96	Florence Bay, Chichagof Is.	A	M	1807-	L	Y		?
78	7/16/96	Florence Bay, Chichagof Is.	A	F	1387-	R	Y		
79	7/24/96	Duffield Peninsula, Baranof	J	F	1387-	R	N		?
80	7/24/96	Duffield Peninsula, Baranof	J	M	1807-	L	N		?
81	7/25/96	Duffield Peninsula, Baranof	J	F	1387-	R	Y		?
82	7/25/96	Florence Bay, Chichagof Is.	J	F	1387-	R	N		?
83	8/5/96	Margaret Lake, Revilla.	J	M	1807-	L	Y		alive
84	8/7/96	Fish Creek, Douglas Island	J	M	1807-	L	Y		?
85	8/8/96	Cutthroat Creek, P.O.W. Is.	J	M	1807-	L	Y		?
86	12/7/96	Auk Bay, Juneau (Rehab.)	I	M	1807-	L	Y		?
87	5/29/97	Back Loop, Rd., Juneau	I	M	1807-	L	N		?
88	6/25/97	Ready Bullion Crk.,	A	F	1387-	L	Y		alive
89	6/25/97	Ready Bullion Crk.,	A	M	1807-	R	Y		alive
90	6/27/97	Nugget Crk., Juneau	A	F	1387-	L	Y		?
91	7/2/97	Blueberry Hill, Douglas	A	F	1387-	L	Y		alive
92	7/3/97	Cutthroat Creek, P.O.W. Is.	A	F	1807-	R	Y		alive
93	7/9/97	East Bay of Pillars, Kuiu	J	M	1807-	L	N		?
94	7/11/97	Green Cove, Admiralty	J	F	1387-	R	N		?

Table 8 Continued

#	Date	Location	Age	Sex	Band #	Leg	Tag?	Recaptured	Status
95	7/11/97	Green Cove, Admiralty	J	M	1807-	L	N		?
96	7/11/97	Green Cove, Admiralty	A	M	1807-	R	Y		alive
97	7/17/97	Camp Carl, Etolin Island	A	F	1807-	R	Y		alive
98	7/17/97	Camp Carl, Etolin Island	A	M	1807-	L	N		?
99	7/22/97	Timber Knob, Heceta Island	J	F	1807-	R	N		?
100	7/23/97	Timber Knob, Heceta Island	J	F	1387-	R	N		?
101	7/24/97	Timber Knob, Heceta Island	J	M	1807-	L	N		?
102	7/26/97	Nugget Crk, Juneau	J	M	1807-	L	N		?
103	7/26/97	Nugget Crk, Juneau	J	M	1807-	L	N		?
104	7/31/97	Ready Bullion Crk.,	J	M	1807-	L	N		?
105	7/31/97	Ready Bullion Crk.,	J	M	1807-	L	N		?
106	8/7/97	Blueberry Hill, Douglas	J	F	1387-	R	Y		?
107	8/8/97	Fish Creek, Douglas Island	J	M	1807-	L	Y		alive
108	8/12/97	Margaret Lake, Revilla.	J	M	1807-	L	Y		?
109	8/14/97	Blueberry Hill, Douglas	J	M	1807-	L	N		?

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