ARIZONA BALD EAGLE WINTER COUNT: 1995

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INTRODUCTION

Arizona's wintering bald eagle (*Haliaeetus leucocephalus*) population was examined in the 1970s and early 1980s through comprehensive winter counts (Todd 1977, 1981, 1984a, 1984b; Hall 1985). In 1986, the National Wildlife Federation (NWF), coordinator of the nationwide survey, asked that only areas of eagle concentration (sites with more than 15 eagles observed in 2 or more years) be surveyed. Subsequently, due to Arizona's lack of eagle "concentrations," the state only contributed minimal information in 1986 and 1987 (Hastings 1988). From 1989 through 1991 winter counts in Arizona were localized to specific management areas such as Roosevelt Lake (USFWS 1990) and Nankoweap Creek (Brown et. al 1989, Brown and Stevens 1991). Annual statewide counts were resumed in 1992 (Beatty 1993, Beatty and Driscoll 1994, Beatty et al. 1995) using a combination of volunteers and helicopters.

The national bald eagle winter survey, which was initiated and organized by the NWF from 1979-1991, is now coordinated by the Raptor Research Technical Assistance Center (RRTAC--Bureau of Land Management, 3948 Development Ave., Boise, Idaho 83705). Because the bald eagle can be gregarious in the winter, national surveys can determine the species' success throughout its range and distribution (Stalmaster 1987). In addition, determining bald eagle winter use in Arizona contributes to management efforts on the bird's wintering grounds. Identifying the bird's winter distribution in Arizona was a goal defined in the 1982 Southwest Bald Eagle Recovery Plan (USFWS 1982).

METHODS

We standardized 115 survey sites for the 1995 Arizona winter count. These sites were developed after examining all routes completed over the last three years. Sites were deleted that were either not regularly completed, difficult to access, did not have any eagles sighted, or were difficult to duplicate. The results from these routes will be the only forms submitted to the RRTAC toward the national count.

Our objective for the 1995 count was to complete all of the 115 standardized sites. Any additional routes completed are included in this report solely for management purposes and are not included in final tallies (Table 11).

The 1995 winter count was scheduled to be conducted from 10-15 January 1995 to allow weekday use of agency helicopters as well as provide a weekend for volunteers. One flight occurred on 20 January due to poor weather during the scheduled flight dates. Due to the diverse habitat in Arizona and the desire to maximize (but not duplicate) the

count of bald eagles in a narrow time frame with minimal effort, a variety of methods are needed to survey the state adequately. The Salt, Verde, and Gila river drainages and their associated lakes and tributaries are the main water bodies in central Arizona where fish and carrion eating bald eagles might occur. The best way to survey the rugged terrain, deep canyons, and relative inaccessibility of these river drainages was by helicopter. The Bureau of Reclamation (USBR) and Salt River Project (SRP) contributed four days of helicopter time to survey the Verde, Salt, and Gila drainages and their main tributaries. Other areas in Arizona which are more accessible by boat, vehicle, and foot, were left to volunteer surveyors.

Helicopter surveys were conducted with three biologists and a pilot in low-level flight, directly above the drainage. The observer in front had the best overall view. Observers in back watched for birds out the side windows. Often the observer in front was able to spot the most eagles. Biologists in back were most useful observing eagles along cliffs and birds that flushed and flew to the side of the helicopter. Level of flight and speed varied on terrain, height and density of tension wires, and wind speed. A flying height of 100 to 200 feet above ground level was best for all observers when conditions were favorable. Most volunteers surveyed from their vehicle. Foot travel, boats, helicopters, and snowmobiles were less used methods.

Volunteer surveyors from agencies and private groups were solicited through the mail, given forms (supplied by the RRTAC), and instructed on procedures. Golden eagles observed were also recorded during the survey, but not reported in this document. Winter Count forms were submitted to the Department for compilation and sent to the western regional coordinator of the RRTAC.

Adult plumaged bald eagles are birds at least five years old, with a distinct all white head and tail, brown wings and body. Subadult (or immature) plumaged birds are 1 to 4 years old with brown in the tail and head and white mottling on the body (Clark and Wheeler 1987). Volunteers were asked to be aware of mistaking four-year old near-adult bald eagles for full-adult plumaged birds.

Data were broken down in two sections, the helicopter survey and the volunteer survey by county. The data presented in the Appendix (Tables 1-10) describe the results of the helicopter survey and the volunteer survey by county. Helicopter and volunteer survey results are separated in this report to facilitate comparisons with future winter counts in the event that helicopter support is not available.

RESULTS

The standardized 1995 Arizona winter count totaled 248 bald eagles statewide (Tables 1-10). We recorded 164 adults (66%), 76 subadults (31%), and 8 unknown age bald

eagles (3%). A total of 9563 minutes (159 hours) were spent searching for eagles. The greatest effort was in Coconino County, where volunteers spent 2718 minutes (45 hours) searching for bald eagles (Table 12). Additionally, Coconino County counted the most eagles (n=60).

The most efficient method of counting eagles was by helicopter. The 108 eagles counted in 1005 minutes from the helicopter represented one eagle per 9 minutes of searching. The most efficient volunteer ground effort occurred in Navajo County, where one eagle was counted for every 31 minutes spent searching (Table 12).

DISCUSSION

Methods of searching for bald eagles during the 1992-1995 winter counts changed from those of earlier statewide surveys. Todd (1981) flew extensively throughout the state in a fixed-wing aircraft emphasizing the northern section of the state near Flagstaff, and the eastern White Mountains. In contrast, we used terrestrial volunteers to survey northern and northeastern regions of the state. The helicopter was the only aircraft used extensively in the most recent counts, emphasizing Arizona's central rivers and lakes surrounding the breeding bald eagle population. Todd flew the lower reaches of the Verde and Salt rivers, but access to the upper reaches of these drainages was hampered by the fixed-wing aircraft's inability to fly in narrow canyons.

Because our methods were different from Todd's, we were unable to standardize our winter count locations until this season. Initially, a volunteer base had to be built. We then had to determine which routes would be surveyed consistently and which were accessible under harsh weather conditions. After considering all sites completed from 1992 through 1994, we finally established 115 routes. We kept sites that were consistently completed, accessible, and productive, and we deleted some long terrestrial oriented routes that were difficult to duplicate and those that did not produce any eagles. We did keep some sites in southern Arizona where eagles have not been spotted, to maintain routes that would adequately represent the entire state.

Temperatures for Arizona during the survey period were characterized as above normal with light to moderate precipitation (NOAA 1995). Temperatures ranged from 4^{o} above normal in the desert areas to 12^{o} above normal in the northeast. Snowfall was limited to the higher elevations.

The total number of bald eagles counted in Arizona during the 1995 winter count was 248. This falls short of the record 363 eagles counted in 1994, but above the next highest number of birds recorded in 1992 and 1984 (n=225) (Table 13).

The age structure of the 248 bald eagles observed was 66 percent (n=164) adults, 31 percent (n=76) subadults, and 3 percent (n=8) unknown. Stalmaster (1987) discussed the

factors that can influence winter age ratios, such as status of the population, stage of migration, and geographic location. Later, Stalmaster summarizes: "roughly a third of all eagles in any concentration are juveniles and sub-adults." The NWF national winter surveys (Hastings 1988) for 1986-1988 averaged 33 percent subadult eagles. Arizona's statewide counts from 1981-1985 and 1992-1995 averaged 30 percent subadult bald eagles (Table 13).

Rainfall just prior to our survey of the Verde River and the White and Black rivers seemed to reduce the number of eagles sighted along these drainages. This observation is consistent with previous counts when rain coincided with our survey. When rainfall occurred before our 1993 and 1995 Verde River surveys, we counted 13 and 20 eagles respectively. However, when there was little rainfall in 1992 and 1994, we counted 36 and 31 birds along the Verde. Similarly, in 1992 and 1994 we counted 32 and 25 birds along the Black and White rivers. Yet, along the muddy Black and White rivers in 1995, we saw only 10 birds.

In mid-February 1995, approximately 130 eagles were observed at one time at Mormon Lake near Flagstaff (C. Dargan pers. comm.). This represents the largest concentration of wintering birds ever recorded in Arizona. Unfortunately, these eagles were not included in the 1995 count, because the observation occurred well outside the targeted survey period. Previously, the maximum number of eagles observed at Mormon Lake was about 30 to 40 eagles (C. Dargan pers. comm.). The age structure of the Mormon Lake concentration was nearly 75 percent subadult birds (C. Dargan pers. comm.). This is the opposite of the age structure percentages that has been cited as typical for bald eagle concentrations (Stalmaster 1987).

We are unsure about the specific reasons for this eagle concentration at Mormon Lake. Clearly, though, a food-related phenomenon would be the obvious conclusion. During February, waterfowl (northern pintails, Canada geese etc.) numbers were in the thousands. Coinciding with a fathead minnow die off, eagles were reportedly eating the small fish that had floated to holes in the ice. Eagles were also observed trying get access to these fish by jumping on the ice to make a hole. Additionally, eagles were seen eating American coots which had become trapped on the lake's surface by ice (C. Dargan pers. comm.). This combination of factors may have contributed to the large amount of eagles seen at Mormon Lake in February.

Roosevelt Reservoir has been consistently surveyed from 1989 to 1995 for wintering bald eagles (Table 14) by the Bureau of Reclamation, in response to a USFWS recommendation in the Biological Opinion issued 30 March 1990 on the Central Arizona Water Control Project, Roosevelt Dam Element of Plan 6. Four eagles were observed at Roosevelt in 1995, three eagles were along the northern shore. The totals for the surveys conducted from 1989 through 1995 were 33 (24 adults, 9 subadults) bald

eagles. Twenty-two (67%) of these eagles were observed on the north shore, and 11 (23%) on the south shore.

RECOMMENDATIONS

1.Continue to conduct the annual winter count with the 115 standardized routes.

2.Develop a database for all routes completed in the 1990s, including core information from the standardized survey forms.

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APPENDIX

Table 1. Results of standardized 1995 Arizona bald eagle winter count, 10-15 January, Apache County, Arizona.

Site #	Site	Minutes	Surveyor	Ad[1]	Sub	Ube	Uea
1	Becker Lake	15	Ordonez - USFS	0	0	0	0
2	Little Colorado River (LCR)	20	"	1	0	0	0
3	S. Fork LCR - Campground	20	"	0	0	0	0
4	Casa Malapais - LCR	10	"	0	0	0	0
5	Greer Lakes (River, Bunch, and Tunnel Reservoirs)	40	"	0	0	0	0
6	Sponseller Lake	90	Puschell - USFS	3	3	0	0
7	Mexican Hay Lake	25	Vahle, Aubuchon - AGFD	2	2	0	0
8	White Mt. Hereford Rch. (Trinity, Glen Livet, McKay Res)	120	Winstead - AGFD	1	0	0	0
9	The Ranch Lake	20	Cagle - AGFD	0	0	0	0
10	Ortega Lake	25	"	1	0	0	0
11	Concho Lake	25	"	0	0	0	0
12	Luna Lake	50	Jamarilla - USFS	0	0	0	0
13	Nelson Reservoir	60	"	1	3	0	0
14	Nutriosa Reservoir	50	"	0	0	0	0
15	Tenney Pond	50	"	0	0	0	0
16	San Francisco River (Alpine RD to New Mexico)	220	Hoffman - USFS	0	0	0	1
17	Campbell Blue Creek	-	Not surveyed				

[1]Ad=adult, Sub=subadult, Ube=unknown age of bald eagle, Uea=unknown type of eagle.

Table 2. Results of standardized 1995 Arizona bald eagle winter count, 10-15 January, Cochise County, Arizona.

Site #	Site	Minutes	Surveyor	Ad[1]	Sub	Ube	Uea
18	Parker Canyon Lake	60	Millican - AGFD	2	1	0	0

19	Willcox Playa	-	Not surveyed				
20	Sulphur Springs Valley - Whitewater Draw	120	Olding - AGFD	0	0	0	0

Table 3. Results of standardized 1995 Arizona bald eagle winter count, 10-15 January, Coconino County, Arizona.

Site #	Site	Minutes	Surveyor	Ad[1]	Sub	Ube	Uea
21	Long Lake Complex	125	Hopkins - USFS	8	6	2	0
22	Stoneman Lake	100	Peck-Moniak - USFS	1	1	0	0
23	FH3	40+	"	1	0	0	1
24	I-17, Sedona to Flagstaff	150	Theobald - USFS	1	1	0	0
25	Bellemont	120	Crisp, Popowski - USFS	4	0	0	0
26	Townsend / Winona A & B	360	Beard, Phillips - USFS	0	0	0	0
27	Hwy 89 North / Sunset Crater - Wupatki	330	Dargan, Morall - USFS	1	0	0	0
28	FH3 Lakes (Mary, Mormon, Marshall, Prime)	411	Green - USFS	5	3	0	0
29	Continental Country Club Lakes	129	McKellar -Flag Bird Club	0	0	0	0
30	Chevelon Canyon Lake	?	Clay - AGFD	0	0	0	0
31	Holden Lake	20	Menasco, Gibbons- USFS	0	1	0	0
32	Spring Valley Wash	15	Waldrip - USFS	0	0	0	0
33	Red Lake Valley	80	Matza - USFS	0	2	0	0
34	Kaibab Lake	30	Menasco, Gibbons- USFS	2	0	0	0
35	Pittman Valley	60	Matza - USFS	0	0	0	0
36	Davenport Lake	35	Menasco, Gibbons- USFS	1	0	0	0

[1]Ad=adult, Sub=subadult, Ube=unknown age of bald eagle, Uea=unknown type of eagle.

Table 3. Continued.

Site #	Site	Minutes	Surveyor	Ad[1]	Sub	Ube	Uea
37	Scholz Lake	30	Tissaw, Lund - USFS	2	1	0	0
38	Cataract Lake	30	Menasco, Gibbons- USFS	0	0	0	0
39	Willow Springs Lake	-	Not surveyed				
40	West Chevelon Canyon	95+	Benoit - USFS	1	1	0	0
41	Willow Creek	240	Sainsbury - USFS	1	0	0	0
42	White Horse Lake -	35	Tissaw, Lund - USFS	2	1	0	0

	Pomeroy Tanks						
43	JD Dam Lake	-	Snow - unable to access site				
44	Barney Flat Wetland	20	McGann - USFS	0	0	0	0
45	Steel / Stone Road	40	Nelson - USFS	0	0	0	0
46	Pine Flat		Snow - unable to access site				
47	Boggy Tank	70	Kuenzi - USFS	0	0	0	0
48	Blue Stem Wash-Babbitt property	33	"	0	0	0	0
49	Glen Canyon Nat'l Rec Area (Lee's Ferry)	55	Pinnock - NPS	1	1	0	0
50	Colorado River, Lee's Ferry to Little Colorado River	65	Sogge - NBS	8	1	0	0

Table 4. Results of standardized 1995 Arizona bald eagle winter count, 10-15 January, Graham, Greenlee, and Maricopa counties, Arizona.

Site #	Site	Minutes	Surveyor	Ad[1]	Sub	Ube	Uea
51	Point of Pines Lake Area	-	Not surveyed				
52	Greys Peak	-	Not surveyed				
53	Painted Rock Reservoir	-	Not surveyed				

[1]Ad=adult, Sub=subadult, Ube=unknown age of bald eagle, Uea=unknown type of eagle.

Table 5. Results of standardized 1995 Arizona bald eagle winter count, 10-15 January, Mohave County, Arizona.

Site #	Site	Minutes	Surveyor	Ad[1]	Sub	Ube	Uea
54	Lake Mohave	240	Hendricks - NPS	1	0	0	0
55	Havasu National Wildlife Refuge, Topock Marsh	300	Raulston - USFWS Pleger - AGFD	0	0	0	0
56	Lake Mead, Temple Bar	660	Klein, Scott - NPS	9	2	0	0
57	Alamo Lake	480	ABENWP	3	1	0	0

Table 6. Results of standardized 1995 Arizona bald eagle winter count, 10-15 January, Navajo County, Arizona.

Site #	Site	Minutes	Surveyor	Ad[1]	Sub	Ube	Uea
58	Lake of the Woods	10	Klein - USFS	0	0	0	0
59	Rainbow Lake	35	Sorenson, Lofgreen - USFS	0	0	0	0
60	Little Mormon Lake	80	Fink - AGFD	0	0	0	0
61	Whipple Lake	100	"	0	5	6	0
62	Long Lake	60	"	0	0	0	0
63	Lone Pine Lake	20	Holland - AGFD	0	0	0	0
64	Schoens Reservoir	40	"	1	0	0	0
65	White Mountain Lake	30	"	0	0	0	0
66	Dry Lake	270	Chapin - AGFD	0	0	0	0
67	Jacques Marsh	30	Klein - USFS	2	2	0	0
68	Scott's Reservoir	35	"	1	1	0	0
69	Showlow Lake	45	Housser - USFS	1	0	0	0
70	Pintail Lake	60	Rinker - AGFD	0	1	0	0
71	Telephone Lake	45	"	0	3	0	0
72	Fool Hollow Lake	130	Housser - USFS	6	1	0	0

[1]Ad=adult, Sub=subadult, Ube=unknown age of bald eagle, Uea=unknown type of eagle.

Table 6. Continued.

Site #	Site	Minutes	Surveyor	Ad[1]	Sub	Ube	Uea
73	Fred's Lake	5	Sorenson, Lofgreen - USFS	0	0	0	0
74	Edeler's Lake	5	Sorenson, Lofgreen - USFS	0	0	0	0
75	Cottonwood Wash / Clay Springs	-	Not surveyed				
76	White Lake	15	Rinker - AGFD	3	2	0	0

Table 7. Results of standardized 1995 Arizona bald eagle winter count, 10-15 January, Pima, Pinal, and Santa Cruz counties, Arizona.

Site #	Site	Minutes	Surveyor	Ad[1]	Sub	Ube	Uea
77	Arivaca Lake	120	Newman - USFS	0	0	0	0

78	Picacho Reservoir	-	Not surveyed				
79	Bog Hole	90	Millican - AGFD	0	0	0	0
80	Patagonia Lake	-	Not surveyed				
81	San Raphael Valley	-	Not surveyed				
82	Pena Blanca Lake	60	Newman - USFS	0	0	0	0

Table 8. Results of standardized 1995 Arizona bald eagle winter count, 10-15 January,Yavapai County, Arizona.

Site #	Site	Minutes	Surveyor	Ad[1]	Sub	Ube	Uea
83	Wet Beaver Creek	300	Agyagos - USFS	0	0	0	0
84	Oak Creek	930	Van Cleve - Audubon	0	0	0	0
85	Willow Lake	25	Fletcher - USFS	0	0	0	0
86	Lynx Lake	30	"	2	0	0	0
87	Watson Lake	25	"	1	0	0	0
88	Goldwater Lake	25	"	0	1	0	0

[1]Ad=adult, Sub=subadult, Ube=unknown age of bald eagle, Uea=unknown type of eagle.

Table 9. Results of standardized 1995 Arizona bald eagle winter count, 10-15 January, Yuma / La Paz counties, Arizona.

Site #	Site	Minutes	Surveyor	Ad[1]	Sub	Ube	Uea
89	Imperial National Wildlife Refuge Cibola / Martinez Lake - Colorado River	420	Kennedy, Smith - USFWS	4	1	0	0

Table 10. Results of standardized 1995 Arizona bald eagle winter count, helicopter survey, 10-20 January, Arizona. Surveyors: AGFD - Driscoll, Beatty, Koloszar, SRP - Nobel, USBR - Messing.

Site #	Site	Minutes	Surveyor	Ad[1]	Sub	Ube	Uea
90	Verde River	258	AGFD, SRP, USBR	19	1	0	0
91	Lower East Verde River	20	"	0	0	0	0
92	Lower West Clear Creek	20	"	4	1	0	0
93	Lower Salt River	209	"	10	3	0	0

94	Upper Salt River	40	"	2	0	0	0
95	Lower Tonto Creek	29	"	5	2	0	0
96	Lower Cherry Creek	5	"	0	0	0	0
97	Lower Canyon Creek	5	"	1	0	0	0
98	Lower Cibecue Creek	5	"	0	0	0	0
99	Lower Carrizo Creek	8	"	0	0	0	0
100	White River	15	"	1	0	0	0
101	North Fork White River	43	"	4	1	0	0
102	Lower Black River	50	"	4	0	0	0
103	Big & Little Bonito Creeks	44	"	0	0	0	0
104	San Carlos River (Talkalai Lake)	34	"	2	5	0	0
105	San Carlos Reservoir	40	"	5	7	0	0
106	Upper and Lower Gila River	69	"	3	7	0	0

[1]Ad=adult, Sub=subadult, Ube=unknown age of bald eagle, Uea=unknown type of eagle.

Table 10. Continued.

Site #	Site	Minutes	Surveyor	Ad[1]	Sub	Ube	Uea
107	Eagle Creek	37	AGFD, SRP, USBR	11	1	0	0
108	Bonita Creek	17	"	4	0	0	0
109	Lower San Francisco River	34	"	2	0	0	0
110	Blue River	11	"	1	0	0	0
111	Sunrise Lake	3	"	1	0	0	0
112	Big Lake	1	"	0	0	0	0
113	Lee Valley Reservoir	1	"	0	0	0	0
114	Crescent Lake	1	"	0	0	0	0
115	Lake Pleasant	6	"	1	0	0	0

[1]Ad=adult, Sub=subadult, Ube=unknown age of bald eagle, Uea=unknown type of eagle.

Table 11. 1995 winter count sites not included in standardized survey, Apache, Cochise, Coconino, Graham, Greenlee, and Navajo counties, Arizona.

Date	County	Site	Drainage	Surveyor	Ad	Sub	?
1/11/95	Apache	Sierra Blanca Lake	Sierra Blanca Lake	Slaughter-Herndon	0	0	0
1/11/95	Apache	Upper Black River	Black River	Slaughter-Herndon	3	1	2
1/11/95	Apache	Dry Valley Ponds	None	Jaramillo	0	0	0
2/1/95	Cochise	Chiricahua Mts. - Hughes Tank	None	Scott	1	0	0
1/10/95	Coconino	Hwy 87	None	Hopkins	0	4	1
1/14/95	Coconino	Hwy 87 South	None	Peck-Moniak	2	0	0
1/10/95	Coconino	Smoot Lake	None	Waldrip	0	0	0
1/10/95	Coconino	Garland Prairie	None	Eavis	0	0	0
1/10/95	Coconino	FS Road 423 & 642	None	Siders	0	0	1
1/10/95	Coconino	FS Road 447	None	Siders	0	0	0
1/10/95	Coconino	FS Road 422	None	Siders	0	0	1
1/11/95	Coconino	Kanab Creek	Kanab Creek	Sinton	1	0	0
1/11/95	Graham	Upper Sulphur Springs	None	Bibles, Holcomb, Froehlich	3	0	0
1/13/95	Graham	Hawley Lake	Hawley Lake	AGFD	2	0	0
1/13/95	Graham	Horseshoe-Cienega Lake	Bog Creek	AGFD	2	0	0
1/12/95	Greenlee	Dix Creek	Dix Creek	AGFD	1	0	0
1/11/95	Navajo	Woodland Lake	Woodland Lake	Sorenson, Lofgreen	1	0	0

Table 12. Summary of 1995 Arizona bald eagle winter count.

County	Sites	Minutes	Total/minute	Subadult	Adult	Unknown	Total
Verde River drainage	3	298	0.08	2	23	0	25
Salt River drainage	11	453	0.07	6	27	0	33
Gila River drainage	7	242	0.2	20	28	0	48
Various helicopter	5	12	0.17	0	2	0	2
Apache	16	840	.02	8	9	0	17
Cochise	2	180	.02	1	2	0	3
Coconino	27	2718	.02	19	39	2	60
Graham	0	0	0	0	0	0	0
Greenlee	0	0	0	0	0	0	0
Mohave	4	1680	0.009	3	13	0	16
Navajo	18	1115	0.03	15	14	6	35
Pima/Pinal	1	120	0	0	0	0	0
Santa Cruz	2	150	0	0	0	0	0
Yavapai	6	1335	0.003	1	3	0	4
Yuma	1	420	0.01	1	4	0	5
Totals	103	9563	0.03	76 (31%)	164 (66%)	8 (3%)	248 (100%)

Table 13. Summary of statewide Arizona bald eagle winter counts, 1981-1985, 1992-1995.

Year	Survey time minutes	# Subadult bald eagles	# Adult bald eagles	# Unknown bald eagles	Total # bald eagles
1981	-[1]	60 (36%)	103 (63%)	2 (1%)	165
1982	-	72 (34%)	135 (64%)	3 (2%)	210
1983	-	53 (33%)	104 (66%)	1 (1%)	158
1984	-	63 (28%)	159 (71%)	3 (1%)	225
1985	-	40 (34%)	78 (66%)	0	118
1992	9801	70 (31%)	145 (65%)	10 (4%)	225
1993	9938	46 (25%)	133 (71%)	7 (4%)	186
1994	7949	96 (26%)	263 (72%)	4 (1%)	363
1995[2]	9563	76 (31%)	164 (66%)	8 (3%)	248
Totals	37,251[3]	576 (30%)	1284 (68%)	38 (2%)	1898 (100%)

[1]The effort for the 1981-1984 counts were described in miles flown.
[2]Beginning of the use of 115 standardized routes from the 1992-1994 surveys.
[3]Represents only counts from 1992-1995.

Table 14. Summary of Roosevelt Reservoir bald eagle winter counts, Arizona, 1989-1995.

Year	Subadult bald eagles	Adult bald eagles	Eagles observed north shore	Eagles observed south shore
Nov. 21, 1989	1	5	1	5
Jan. 3, 1990	1	5	5	1
Feb. 6, 1990	1	1	1	1
Mar. 21, 1990	0	1	0	1
Jan. 15, 1991	3	1	3	1
Jan. 10, 1992	2	5	6	1
Jan. 21, 1993	0	0	0	0
Jan. 6, 1994	0	3	3	0
Jan. 20, 1995	1	3	3	1
Totals	9	24	22	11