

Compatibility Determination

Use: Outdoor Recreation (other): Bicycling

Refuge Name: Chincoteague NWR

Establishing and Acquisition Authority(ies): Migratory Bird Conservation Act

Refuge Purpose: For use as an inviolate sanctuary, or for any other management purpose for migratory birds.

National Wildlife Refuge System Mission:

To administer a national network of lands and waters for the conservation, anagement, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

Description Proposed Use: Outdoor Recreation

Bicycle and hiking trail use and other wildlife oriented activities are covered in the 1992 Final Environmental Impact Statement for the Chincoteague National Wildlife Refuge Master Plan (FEIS) and the 1993 Chincoteague National Wildlife Refuge Master Plan. Additional information can also be found in the station's 1993 Public Use Plan. These documents are appended.

After the establishment of the refuge in 1943, the only public recreation that occurred on Chincoteague before the bridge was constructed in 1962 was beach use, primarily surf fishing. Visitors would drive down the beach from the Maryland end of Assateague Island. On June 17, 1957, Congress passed Public Law 85-57, Chincoteague National Wildlife Refuge, Virginia - Bridge and Road. This law authorized the Secretary of the Interior to permit the construction of a bridge and road across Chincoteague National Wildlife Refuge. The objective of this law was "to permit the controlled development of a portion of the seashore of the Chincoteague National Wildlife Refuge, Virginia for recreational purposes, ..." This law also authorized the Secretary to enter into agreements for the construction, maintenance, and operation "of a public beach, concession, parking areas, and other related public conveniences,..." The FWS, on April 1, 1959, entered into an agreement with the Chincoteague-Assateague Bridge and Beach Authority whereby certain refuge lands constituting what is known as Toms Cove Hook were assigned to the Authority for the purpose of developing a public beach and recreational facility. The deed of easement also provided for the construction of a bridge and access road to the Toms Cove Hook.

After the construction of the bridge in 1962, visitation steadily rose and by 1968 over 500,000 visits were recorded. During the next decade refuge visits increased by an average of 12% annually. In 1987 visitation peaked at over 1.5 million visits, with over 800,000 occurring during the summer season, June through August. In 1993 the refuge received 1,415,830 visits.

The Wildlife Trail which was located approximately where the Marsh Trail is today was opened for public use in the early 60's. A 30 car parking lot for trail users was completed in 1968. Also, the Lighthouse Trail was opened in 1968. In 1971, the Pony Trail (now called the Woodland Trail) was opened and the Wildlife Drive (now called the Wildlife Loop) was paved. Swan Cove Trail which connects the Wildlife Loop with the recreational beach area was opened in 1985. The Marsh, Lighthouse and Woodland trails and the Wildlife Loop have trail guides and/or interpretive exhibits. There are two observation platforms on the Wildlife Loop and one on the Woodland Trail.

In 1979, a bicycle trail from the Assateague bridge to the refuge visitor center and a trail, Black Duck Trail, connecting the Wildlife Loop with the Woodland Trail were developed. Then in 1985 the trail system was completed with the opening of the 1.2 mile Swan Cove Trail that connected the Wildlife Loop with beach parking lot #1. Bicycle use is permitted on the Beach Road, Wildlife Loop, Swan Cove Trail, Black Duck Trail, and the Woodland Trail. In 1993, bicycle trail use was 46,081 visits with peak trail use of 11,370 visits occurring in July. Forty-four percent of all bicycle visits occur on the Wildlife Loop. Attached is a table showing the 1993 bicycle and other use of the refuge trail system.

Anticipated Impacts on Refuge Purposes(s):

Bicycle use, as well as other forms of trail use, has the potential to impact shorebird, waterfowl, and other migratory bird populations feeding and resting near the trails during certain times of the year. Use of the Woodland Trail is more likely to impact songbirds than other migratory birds.

Human disturbance to migratory birds has been documented in many studies in different locations. Conflicts arise when migratory birds and humans are present in the same areas (Boyle and Samson 1985). Response of wildlife to human activities includes: departure from site (Owen 1973, Burger 1981, Kaiser and Fritzell 1984, Korschgen et al 1985, Henson and Grant 1991, Kahl 1991, Klein 1993), use of sub-optimal habitat (Erwin 1980, Williams and Forbes 1980), altered behavior (Burger 1981, Korschgen et al. 1985, Morton et al. 1989, Ward and Stehn 1989, Havera et al. 1992, Klein 1993), and increase in energy expenditure (Morton et al. 1989, Belanger and Bedard 1990). McNeal et al. (1992) found that many waterfowl species avoid disturbance by feeding at night instead of during the day. Studying the effects of human visitation on waterbirds at J.N. "Ding" Darling NWR, Klein (1989) found resident waterbirds to be less sensitive to disturbance than migrants; she also found that sensitivity varied according to species and individuals within species. Ardeids were quite tolerant of people but were disturbed as they took terrestrial prey; great blue herons, tricolored herons, great egrets, and little blue herons were observed to be disturbed to the point of flight

more than other birds. These birds are also found on Chincoteague Refuge, and Kushlan (1987) found that the need of these birds to move frequently while feeding may disrupt interspecific and intraspecific relationships. In addition, Batten (1977) and Burger (1981) found that wading birds were extremely sensitive to disturbance in the northeastern U.S. Klein (1993) in a studying waterbird response to human disturbance found that as intensity of disturbance increased, avoidance response by the birds increased and found that out-of-vehicle activity to be more disruptive than vehicular traffic; Freddy et al. (1986) and Vaske (1983) also found the latter to be true. In regards to waterfowl, Klein (1989) found migratory dabbling ducks to be the most sensitive to disturbance and migrant ducks to be more sensitive when they first arrived, in the late fall, than later in winter. She also found that gulls and sandpipers to be apparently insensitive to human disturbance, with Burger (1981) finding the same to be true for various gull species.

For songbirds, Gutzwiller et. al. (1994) found that singing behavior of some species was altered by low levels of human intrusion. Some studies have found that some bird species habituate to repeated intrusion; frequently disturbed individuals of some species have been found to vocalize more aggressively, have higher body masses, or tend to remain in place longer (Cairns 1980, Parsons and Burger 1982). Disturbance may affect the reproductive fitness of males by hampering territory defense, male attraction and other reproductory functions of song (Arrese 1987, Radesater et. al. 1987). Disturbance, which leads to reduced singing activity, would make males rely more heavily on physical deterrents in defending territories which are time and energy consuming (Gill and Wold 1975, Ewald and Carpenter 1978, Carlson and Morena, 1992).

Some of the impacts covered do occur on this refuge as a result of bicycle use. The magnitude of the impact depends on the time of year and the volume of use. Four of the refuge's fourteen impoundments are impacted to some degree by wildlife oriented public use on the trails; parts of these areas, as well as the trails through wooded areas, are subject to both visual and noise disturbance, which may be caused by bicycle users. When public use of this trail system is the highest (June, July, and August), water management within three of the four impoundments impacted is such that normally very little water is present and therefore, migratory bird use is low. Trail use is lower during the waterfowl migration period when impoundments water levels are more conducive to migratory bird use; however, trail use is relatively high during the peak shorebird migration in May. In determining compatibility, the cumulative effects of all public use on the trails is considered; the attached table depicts total trail use. Migratory bird use by impoundments is appended; as can be seen, migratory bird use in the impoundments affected is high when water levels are suitable, although some disturbance is occurring and some species or individuals may be avoiding the area due to the disturbance.

Determination: (Check One)

This use is compatible X This use is not compatible

Justification:

The vast majority of people bicycling on the seven miles of trails are involved in wildlife interpretation and observation. Increasing visitor awareness of the importance and need for wildlife and wildlands outweighs the disturbance which may be created by this activity. In addition, vehicle use and the impacts associated with that use have been reduced because of the increased number of bicyclists on the refuge; the approximately 46,000 bicycle visits is equivalent to over 14,000 vehicle visits. Suitable migratory bird habitat, which is not subject to disturbance, is also available on other parts of the refuge, for those species or individuals which may not tolerate use of the trails.

The following stipulations will ensure compatibility:

Klein (1989) identified several management strategies used to control the negative effects of recreation on wildlife; these included: user fees, travel ease, permits, zoning (Cullen, 1985), public education (Purdy 1987), limiting number of visitors present, and periodic closing. Chincoteague Refuge employs some of these measures in lessening the disturbance to wildlife.

To keep wildlife disturbance at a minimum, bicycle access will be restricted to designated trails.

Bicycles will continue to be excluded from the Service Road, Marsh Trail, and the Lighthouse Trail, in order to reduce disturbance in these areas..

A kiosk that provides important information for bikers including a 10 MPH speed limit is located near the entrance to the refuge.

Bicycle use will only be permitted during the hours the refuge is normally open to the public, which will allow migratory birds and other wildlife undisturbed use during some of the evening and early morning hours.

Public use activities will be monitored and if visits increase to a point where disturbance becomes a problem, additional restrictions will be implemented.

Project Leader: John D. Schroer, Refuge Manager July 12, 1994
(Name/Title/Signature/Date)

Review and Concurrence: _____
(Name/Title/Signature/Date)

**CHINCOTEAGUE NATIONAL WILDLIFE REFUGE
TRAIL USE - 1993
VISITS BY MONTH**

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
WILDLIFE LOOP												
VEHICLE	3430	3403	3903	9547	13138	20502	31952	31190	17208	10686	6561	4221
FOOT	1683	1673	1923	4669	6429	10026	15690	15364	8523	5276	3215	2067
BICYCLE	202	222	484	1109	1573	2399	4980	4879	2016	1250	807	262
TOTAL	5313	5298	6310	15325	21140	32927	52622	51433	27747	17212	10583	6550
WOODLAND TRAIL												
FOOT	1409	1388	1591	3956	5455	8452	13126	12805	7043	4336	2716	1750
BICYCLE	111	122	267	612	868	1324	2749	2693	1113	690	445	145
TOTAL	1520	1510	1858	4568	6323	9776	15875	15498	8156	5026	3161	1895
LIGHTHOUSE TRAIL												
FOOT	1586	1580	1808	4394	6032	9479	14755	14362	7899	4960	3016	1939

VEHICLES BY MONTH

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
WILDLIFE LOOP												
VEHICLES	1071	1063	1219	2983	4105	6407	9985	9747	5377	3339	2050	1319

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