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The Endangered Species Act at 40: Species Profiles

ARCTIC PEREGRINE FALCON

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ARCTIC PEREGRINE FALCON
(*FALCO PEREGRINUS TUNDRIUS*)

Range:

Historic: tundra regions of Alaska and Canada and the ice-free perimeter of Greenland.

When listed: same as historic

When downlisted in 1984: same as historic

When delisted in 1994: same as historic

Listed status: Endangered [35 FR 16047] 10/13/70.

Current status: Recovered [59 FR 50796-50805] 10/5/94.

Change in status prior to delisting: Threatened [49 FR 10520-105260] 3/20/1984.

Official reasons for listing: 1. DDT-caused eggshell thinning; 2. Egg collecting, human-caused disturbances and habitat destruction.

Recovery criteria: There are a number of criteria.[1]

Population (in Alaska):

Historic: Unknown, but probably in the range 200-400 pairs

When listed: Unknown, but significantly less than historic levels

When downlisted: Unknown, but perhaps 22% higher than when listed

When delisted: Approximately 225 pairs.

[1] **Downlisting**—Meeting or exceeding the following criteria for at least five consecutive years: 1) Occupation of at least 36 nesting sites [70% of historical nest sites at two study areas, the Coleville River (44 sites) and Sagavanirktok River (10)]; 2) an average of 1.4 young/nesting attempt/year; 3) DDE residues less than 5 ppm (parts per million) and total other chlorinated pesticide residues of less than 1 ppm; 4) eggshells less than or equal to 10% thinner than pre-DDT era eggs (U.S. Fish and Wildlife Service 1982b).

Delisting—Once the downlisting criteria have been met or exceeded for an additional five consecutive years.

CLAIMS THAT THE ARCTIC PEREGRINE FALCON IS AN ESA SUCCESS STORY

1) A U.S. Fish and Wildlife Service "Endangered Species Act Success Story."[2]

2) "Here is real evidence that the Endangered Species Act does what it was intended to do—bring species back from the brink of extinction. Success doesn't happen overnight, but this proposal to delist the arctic peregrine reflects the fact that recovery of endangered species is a very real, attainable goal of the act."[3]—Mollie Beattie, then Director, FWS

3) "[W]e owe the survival of the...peregrine falcon...to the Endangered Species Act."—Eric Fischer, then senior vice-president for science and sanctuaries for the National Audubon Society[4]

4) "Both statements are purest nonsense. Several species have been delisted completely including...the Arctic peregrine falcon."—Randall Snodgrass, then Director of Wildlife Issues, National Audubon Society, currently Director of Governmental Affairs, World Wildlife Fund U.S.—responding to two statements, one of which was that no species has ever been delisted due to recovery.[5]

5) "The ESA has served as an essential safety net for such diverse species as…the Arctic peregrine falcon in New Jersey."—National Wildlife Federation[6]

6) The Arctic peregrine falcon is one of "100 Success Stories for Endangered Species Day 2007"—Center for Biological Diversity.[7]

7) The proposed delisting of the Arctic peregrine "proves that the endangered species list really works."—David Cline, then Alaska representative of the National Audubon Society.[8]

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[2] "The Arctic peregrine falcon population began a decline in the 1940s with the introduction of DDT, which led to thin eggshells and hatching failures. By the mid-1970s, the Arctic peregrine population had lost 20 percent of its historical levels. In 1973, both the U.S. and Canada restricted the use of DDT and the Arctic peregrine falcons are now approaching historical population levels. The Service has proposed to remove this species from listing [sic]" (U.S. Fish and Wildlife Service 1992a, p.5). Almost the identical claim was made in: U.S. Fish and Wildlife Service 1993b, p.5; U.S. Fish and Wildlife Service 1995a, p.6.

[3] U.S. Fish and Wildlife Service 1993c.

[4] Fischer 1992.

[5] Watkins 1996, p.40.

[6] National Wildlife Federation 1992, p.132.

[7] Center for Biological Diversity 2007c.

[8] United Press International 1993.

CONSERVATION OF THE ARCTIC PEREGRINE FALCON

The Endangered Species Act essentially had nothing to do with the rebound of the Arctic peregrine falcon. The Arctic peregrine is a subspecies of peregrine falcon that lives in the tundra regions of northern and western Alaska, as well as Canada and Greenland. In the U.S., as elsewhere, Arctic peregrine falcons nest in very remote and relatively inaccessible habitat. This factor, coupled with the ban of DDT prior to the ESA's passage, accounts for virtually all of the peregrine's resurgence. There are nine issues about the Arctic peregrine's conservation that will be examined; DDT, peregrines in Canada and Greenland, FWS creating confusion, three issues that fall under the general factor of exaggerated conservation under the ESA (habitat protection, illusory illegal trade, and pesticide monitoring), political taxonomy, political downlisting, and belated delisting.

DDT

The overwhelming cause of the Arctic peregrine falcon's resurgence was the banning of the pesticide DDT in 1972, not the passage of the ESA in 1973. Due to the Act's passage one year after the DDT ban, the ESA can claim no credit for the ban. DDT is widely cited as being the overwhelming cause of the arctic peregrine's decline and the banning of it as the paramount reason for the peregrine's rebound.

As with some other species of carnivorous birds (i.e., bald eagle, brown pelican and American peregrine falcon), the Arctic peregrine was susceptible to accumulating DDT and its metabolites, or forms into which DDT breaks down once ingested, the most significant of which was DDE (for the sake of simplicity the generic term DDT will be used when referring to the pesticide and its metabolites). DDT caused eggshell thinning that was especially pronounced in raptors such as the peregrine as well as pelicans. Metabolites of DDT are fat soluble so when ingested, typically from prey, they tend to accumulate and persist in carnivorous birds' bodies. DDT inhibits calcium deposition from the adult to the egg, with the result that when eggs are laid they tend to be unnaturally thin. Thin-shelled eggs were susceptible either to breaking when sat

upon by an incubating parent or infertility, which was caused by improper gas exchange—such as oxygen and carbon dioxide—between the embryo and the exterior environment. Raptors, like the peregrine falcon, along with pelicans, are very sensitive to DDT so that only minute amounts of the pesticide can lead to reproductive failure.

DDT came into widespread usage in the post-World War II era. In addition, the pesticide is very persistent once it gets into the environment and food chain, which is another way of saying it is very durable and takes a long time to break down and be rendered harmless to the reproductive processes of carnivorous birds. The combination of the Arctic peregrine's sensitivity to DDT, along with the extensive use of pesticide and its persistence in the environment, led to the falcon's widespread reproductive failure and a population crash. The relationship between DDT, eggshell thickness, and reproductive failure is very firmly established through numerous peer reviewed journal articles.[9]

The chronology of the DDT ban and the ESA's passage is crucially important. DDT was banned in the U.S. on December 31, 1972.[10] The ESA was signed into law almost exactly one year later on December 28, 1973. Therefore, the ESA cannot claim any credit for the ban, which was the single most important factor in the Arctic peregrine's resurgence. Even prior to the 1972 U.S. ban, DDT use began to decline. Canada, where the vast majority of Arctic peregrines live, banned DDT in 1970. Also, use of DDT in the U.S. began to decline long before the eventual ban in 1972. DDT use in the U.S. peaked in 1959 at 35,765 metric tons and then steadily declined so that by 1972, use was around 10,000 metric tons.[11]

Raptor experts and ESA advocates acknowledge the paramount importance of the DDT ban to the Arctic peregrine's conservation. Bill Burnham then President of the Peregrine Fund, the foremost organization concerned with peregrine conservation, stated: "once the environment became cleaner and reproduction improved, populations increased. This was also seen in Great Britain and elsewhere in Europe. In North America the peregrine falcon was already protected

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[9] Ratcliffe 1967; Cade et al., 1968; Enderson and Berger 1968; Hickey and Anderson 1968; Fyfe et al., 1969; Berger et al., 1970; Wiemeyer and Porter 1970; Cade et al., 1971; White et al., 1973; Anderson and Hickey 1974.; Lincer 1975; Peakall et al., 1975; Haugh 1976; Peakall et al., 1976; Cooke 1979; Peakall and Kiff 1979; Pruett-Jones et al., 1981; Enderson et al., 1982; Jenny 1983; Risebrough 1986; Ellis et al., 1989; Newton et al., 1989; Peakall et al., 1990; Olsen et al., 1992.

[10] U.S. Environmental Protection Agency 1972. It should be noted that while the Federal Register notice was dated July 1972, the cancellation of DDT was ordered to occur December 31, 1972.

[11] Nisbet 1988.

by the Migratory Bird Treaty Act so the additional protection from the ESA did not significantly contribute to recovery of arctic populations."[12] Michael Bean of Environmental Defense Fund, widely regarded as the foremost authority on the ESA, stated, "Had our Congress then heeded the dire predictions of DDT's advocates, we would never have experienced the recovery of…the peregrine falcon."[13] Mollie Beattie, then FWS Director, agreed on the paramount importance of the DDT ban: "The recovery of peregrine falcons in Arctic areas resulted largely from restrictions on DDT far beyond the breeding range."[14]

DIMINISHING THE IMPORTANCE OF DDT

Despite the overwhelming evidence of the paramount importance of the DDT ban, some ESA advocates have tried to diminish this in a number of ways, one of which is to state that the DDT ban occurred in 1973. Obviously, this implies that the ESA had something to do with the ban because the Act was passed in 1973 as well. "The use of DDT was restricted in Canada in 1970 and in the United States in 1973," stated the FWS in both the proposed and final Federal Register rules that officially delisted the Arctic peregrine due to "recovery."[15] It is astonishing that a claim like this would appear in the official federal document delisting the Arctic peregrine. This, however, was not the only instance the FWS made such a claim.[16]

The FWS is not been alone in erroneously claiming DDT was banned in 1973. "In 1973, the Environmental Protection Agency (EPA) banned the use of DDT in the United States," according to the Congressional Research Service.[17] The Center for Biological Diversity also

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[12] Burnham 1994b.

[13] Bean 2003.

[14] U.S. Fish and Wildlife Service 1993c.

[15] U.S. Fish and Wildlife Service 1993b, p.51036; U.S. Fish and Wildlife Service 1994g, p.50796.

[16] "The Arctic peregrine falcon population began a decline in the 1940s with the introduction of DDT, which led to thin eggshells and hatching failures. By the mid-1970s, the Arctic peregrine falcon population had lost 20 percent of its historic numbers. In 1973, both the U.S. and Canada restricted the use of DDT and Arctic peregrine falcons are again approaching historic population levels. The Service has removed this species from the list." (U.S. Fish and Wildlife Service 1992a, p.5). Almost the identical claim was made in: U.S. Fish and Wildlife Service 1993b, p.5; U.S. Fish and Wildlife Service 1995b, p.6).

[17] Noecker 1998, p.6.

made the same false claim.[18] Mistakenly pegging the DDT ban to 1973 perhaps contributed to the FWS, Center for Biological Diversity and Congressional Research Service incorrectly crediting the ESA with much, if not all, of the Arctic peregrine's rebound. Yet in the case of the FWS, the agency has also repeatedly stated that the banning of DDT was the most significant factor leading to the peregrine's rebound.[19]

Another way the FWS tries to tout the Arctic peregrine's purported success is to conflate the banning of DDT with other purported recovery efforts under the ESA. For example: "Following EPA's restrictions on the use of DDT and recovery efforts under the Endangered Species Act, Arctic peregrine numbers increased to the point that the subspecies reclassified in 1984 from endangered to…threatened" and then in 1994 is was delisted.[20] Yet as will be discussed in this profile, there were essentially no other meaningful conservation efforts. Also, this claim is so nonspecific that it has little, if any, meaning.

DDT DENIERS

The relationship between DDT and reproductive failure spawned a different reaction, this one from those trying to deny any relationship between DDT and eggshell thinning. These deniers were led, until his death in 2004, by Gordon Edwards, professor of entomology at San Jose State University in California, and Steve Milloy, an activist and the holder in a Master's in health science biostatistics. Edwards and Milloy's points about the purported lack of a relationship between DDT, eggshell thickness and reproductive failure in raptors, including the Arctic peregrine falcon, and pelicans are without merit because, among other things, they use irrelevant data on DDT and quail and ducks, birds that apparently are much more tolerant of the pesticide and suffer little from eggshell thinning. Edwards and Milloy also ignore the huge body of evidence about DDT, eggshells and populations of raptors and pelicans.

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[18] "Following the passage of the Endangered Species Act in 1973, the use of DDT and other organochlorines became severely restricted in the U.S. (their use had been restricted in Canada in 1970) [1]. These restrictions were the most pivotal action in aiding the recovery of the peregrine falcon and Arctic peregrine falcons recovered substantially after organochlorine pesticide use was curtailed [1]." (Center for Biological Diversity 2007c).

The "[1]" in the Center's statement is a citation for the FWS's incorrect claim in the delisting proposal that DDT was banned in the U.S. in 1973.

[19] See: U.S. Fish and Wildlife Service. ND, Commonly Asked Questions; U.S. Fish and Wildlife Service 2000f.

[20] U.S. Fish and Wildlife Service 2006j.

DDT OVERSTATED

Another factor about DDT to consider is that its effects on Arctic peregrines may have been overstated. "Previous nesting ground data on levels of [DDT] contamination was based upon recovered unhatched eggs," stated the FWS in 1983. "Such eggs do not reflect the overall contamination level of the entire population, since they are not a random sample of all eggs being produced. There are some individual females that are very contaminated and rarely hatch a single egg each year."[21] By contrast, blood samples from migrating peregrines showed that in the early 1980s Arctic peregrines were largely free of damaging levels of DDT. "Although the use of DDT still continues where many of these birds apparently winter, the Service has recent samples showing less than 10% of adult females falcons migrating into the Arctic each spring have levels of DDT contamination sufficient to reduce their natural reproductive potential," stated the FWS. "Based upon blood contaminant loads only, the other 90% should be capable of normal reproductive rates."[22] The FWS also elaborated about the potential sampling bias of eggshells.[23]

Some might interpret these statements as negating the significance of DDT to the peregrine's population decline, but this would be inaccurate. While the degree of DDT induced eggshell thinning may well have been exaggerated in the case of the Arctic peregrine, there is no doubt that DDT did cause reproductive impairment and failure. In 1985 research presented at a

[21] U.S. Fish and Wildlife Service 1983c, p.8797.

[22] U.S. Fish and Wildlife Service 1983c, p.8796.

[23] "Samples of eggs from the Arctic (and elsewhere) have been biased in the past by the fact that mostly unhatched or nonviable eggs were obtained. Addled falcon eggs would be expected to contain higher average levels of DDT and other compounds than randomly taken, freshly laid eggs. Because addled eggs are not a random sample, they would not reflect the true frequency and level of contamination in the population as a whole. The samples of blood from randomly trapped falcons provide a far more accurate index of overall contamination levels and frequency in these falcons. The Service concludes that while some female falcons (about 10%) are still significantly contaminated prior to egg laying, the remainder of the northern birds should be producing reasonable numbers of young falcons in recent summers. This latter analysis is based upon 430 blood samples from peregrines trapped in spring and fall migrations in the past 4 years." (U.S. Fish and Wildlife Service 1983c, p.8799).

conference on the peregrine falcon found that if eggshells were not 17% thinner than historical values then peregrines could reproduce successfully.[24]

What emerges from this apparently ambiguous data is not that DDT did not cause eggshell thinning, and hence reproductive failure. Rather, what emerges is that, as more research was conducted the relationship between DDT and eggshell thinning became more precisely defined. More on this topic appears below in the section titled, "Belated Delisting."

MOST ARCTIC PEREGRINES IN CANADA & GREENLAND

One fact that seriously undermines claims that the ESA saved the Arctic peregrine from extinction is that almost all of the sub-species lives outside of the U.S. in Canada and Greenland. "Alaska may represent about 10 percent of the total Arctic peregrine population," according to the FWS.[25] This is essentially correct, although a more recent estimate puts the percentage of North American peregrines in Alaska at 17.0%, or 400-500 pairs, with Canada containing 1,500-2,000 pairs and Greenland 400-500 pairs.[26] Furthermore, peregrines in Alaska, at least from the time of listing until the mid-1980s, were the least productive in terms of the average number of young produced per pair annually. "An apparent cline, increasing from west to east, has been observed: highest average productivity is usually observed in Greenland, the lowest in northern Alaska and northwestern Canada, with local variations (both lows and highs) seemingly the rule rather than the exception," stated the FWS.[27]

The relatively small percentage Arctic peregrines in Alaska, and that these peregrines have been the least productive, underscores two points. First, in terms of the overall health of the sub-species, Alaska's population is much less important that Canada's as well as Greenland's. Second, virtually all the peregrines migrating down the East Coast of the U.S. each fall are not from Alaska but from Canada. Despite this, when the FWS delisted the Arctic peregrine in 1994 the agency tried to credit the ESA for these Arctic peregrines from Canada, as will be explained in the following section.

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[24] Kiff 1988.

[25] U.S. Fish and Wildlife Service 1984b, p.10520.

[26] White et al., 2002, pp.31-32.

[27] U.S. Fish and Wildlife Service 1983c, p.8796.

CREATING CONFUSION

The FWS and some environmental pressure groups misleadingly link peregrine falcons seen along the East Coast of the U.S. in the fall to the ESA. In the "claims of success" above, the National Wildlife Federation states that the ESA has been "an essential safety net" for Arctic peregrines in New Jersey. Yet peregrines barely use habitat in New Jersey because they migrate rapidly down the coast of the state in the fall. The FWS's online profile of the sub-species makes no mention of any federal wildlife refuges in New Jersey, or another state for that matter, on which the Arctic peregrine is found.[28]

When delisting occurred in 1994, the FWS made an attempt to give the ESA credit for the Arctic peregrines seen along the East Coast of the U.S. The FWS stated that the average number of Arctic peregrines seen at Cape May, New Jersey each year increased from 136 from 1976-1979, to 588 from 1990-1993.[29] Ye the FWS neglected to identify the likely origin of these peregrines. Almost all of the Arctic peregrines that pass through Cape May each fall, on their way to wintering grounds that are primarily in Central and South America, are not from Alaska but Canada, and perhaps some from Greenland, where the vast majority of the sub-species breeds.[30] Arctic peregrines from Canada tend to migrate down the eastern flyway, as the migratory corridor along the East Coast is called. Meanwhile, Arctic peregrines from Alaska tend to migrate down the western and central flyways, which are approximately 3,000 and 2,000 and miles away, respectively.[31] In another attempt to give the ESA undue credit, the FWS claimed; "There are now thousands of Arctic peregrines in North America, and the majority of peregrines on the continent belong to this subspecies."[32] Yet this immediately *followed* a statement noting that the FWS delisted the Arctic peregrine in 1994, which gives the misleading

[28] U.S. Fish and Wildlife Service ND, Species Profile: Arctic Peregrine.

[29]. U.S. Fish and Wildlife Service 1994f.

[30] U.S. Fish and Wildlife Service 1994g, p.50802.

[31] White et al., 2002, p. 7.

[32] U.S. Fish and Wildlife Service 1999m.

impression that the ESA was responsible for the thousands of Arctic peregrine falcons in North America, even though only roughly 17.0% of the sub-species exists in Alaska.

Even when the FWS has not been so overtly misleading, it still misleads by failing to acknowledge that the vast majority of Arctic peregrines exist outside the U.S. "Based upon bandings and their recoveries, the Service estimates about 99% of the fall migrants on the Atlantic and Gulf of Mexico coasts originate in the Arctic and sub-Arctic regions from western Alaska to western Greenland," stated the FWS in 1983 when it proposed to downlist the Arctic peregrine from endangered to the less imperiled status of threatened.[33] When delisting occurred a decade later, the agency rehashed this formulation; "Although some of the peregrine falcons seen during migration are American peregrine falcons, the majority seen on the East Coast and near the Great Lakes are arctic peregrine falcons."[34]

EXAGGERATED CONSERVATION UNDER ESA

Those touting the Arctic peregrine as an ESA success story often misleadingly elevate the importance of conservation efforts purportedly carried out under the Act with the factors that account for virtually of the peregrine's resurgence; the paramount importance of the DDT ban and remote, inaccessible habitat. "Banning DDT was the first step in the peregrine's recovery, but the Endangered Species Act was the rest of the story," said Mollie Beattie, then FWS Director.[35] There are three conservation efforts that are discussed below; habitat conservation; illusory illegal trade; and pesticide monitoring.

HABITAT PROTECTION

Habitat conservation had very, very little to do with conservation of the Arctic peregrine. The peregrine's nesting habitat in the U.S. is so remote in the northern reaches of Alaska and inaccessible—peregrine's nest on cliffs and steep bluffs—that they were protected from human

[33] U.S. Fish and Wildlife Service 1983c, p.8797.

[34] U.S. Fish and Wildlife Service 1994g, p.50797.

[35] U.S. Fish and Wildlife Service 1994f.

related habitat destruction and disturbance. Despite this, the FWS claimed the arctic peregrine "benefited from aggressive habitat management."[36] Former FWS Director Beattie claimed, "The peregrine's return is proof that industrial development can occur while protecting endangered species."[37] As evidence, the FWS cited cooperation between the oil and gas industry and the federal government to "schedule their work to avoid sensitive nesting areas during critical times of year to minimize any impact on peregrines."[38] This claim is quite misleading, which can best be explained by geography. Almost all oil and gas development in Alaska has occurred on the coastal plain of the state's north slope, so named because it is relatively flat and is where the Brooks Range of mountains, which run west to east, slope down to the Arctic Ocean. Arctic peregrines, on the other hand, primarily nest inland from the coastal plan along the cliffs and bluffs of rivers, which are usually many miles from oil and gas development.

Despite the FWS's effort to credit the ESA with significant habitat conservation, the agency itself admits this is not accurate. "No significant losses of habitat have occurred within the range of the Arctic peregrine falcon," stated the FWS.[39] According to the Peregrine Fund's Bill Burnham, the Arctic peregrine's recovery "really didn't have to do with the Endangered Species Act."[40]

The FWS undertook almost no conservation efforts for the Arctic peregrine beyond conducting various monitoring studies and restricting the capture of birds by falconers (even though this did not constitute a significant threat because captive breeders have provided a supply of peregrines to falconers). "There have been only a few localized cases of habitat loss (i.e., nesting ledges)," stated the FWS in 1983.[41] Even the Wilderness Society, one of the ESA's most ardent supporters, admits human related habitat destruction and degradation essentially had nothing to do with the Arctic peregrine's conservation. "The Arctic Peregrine suffered substantial reproductive failures but was able to survive over most of its range primarily because

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[36] U.S. Fish and Wildlife Service 1990g, p.11.

[37] U.S. Fish and Wildlife Service 1994f.

[38] U.S. Fish and Wildlife Service 1994f.

[39] U.S. Fish and Wildlife Service 1983c, p.8798.

[40]. Burnham 1994a.

[41] U.S. Fish and Wildlife Service 1983c, p.8796.

its nesting areas are remote and free from encroachment by man," the Society states.[42] According to Ted Swem, FWS biologist and author of the final rule on delisting, while the ESA's Section 7 consultation process (advising oil and gas drilling and exploration operations how to avoid disturbing the birds) helped the Arctic peregrine, this was "relatively unimportant" to the falcon's conservation. He added that banning of DDT was "by far the largest factor in their recovery."[43] When asked what conservation measures helped the falcon, Jay Sheppard, formerly with the FWS Office of Endangered Species, said "it was the remoteness" of its habitat in far northern Alaska that primarily helped.[44]

There are at least a couple of identifiable instances in which the ESA was used to protect habitat, but they seem to have been of relatively minor significance. One occurred in 1975 when the location of a pumping station for the Alaska Pipeline, which was then under construction, was moved because it could have disturbed at least one nest site for the Arctic peregrine, and disturbed rough-legged hawks and gyrfalcons, two species not listed under the ESA. Also, during the same time period use of a nearby private airfield was suspended during the nesting season.[45] It appears that moving the pumping station and halting airfield operations may have had as much, if not more, to do with non-ESA birds as it did with the falcon.

Another example of habitat protection occurred in 1979 when, as part of the Alaska Native Claims Settlement Act of 1971, the Arctic Slope Regional Corporation—the investment body created by the Claims Settlement Act for the native peoples of the Arctic Slope region—granted a conservation easement to the Interior Department. Cliffs and bluffs along the Colville River contained the largest population of Arctic peregrines in Alaska, and the Interior Department wanted to give added protection to the lands along the river corridor.[46] Native Alaskans owned some of these lands.[47] So the native Alaskans, represented by the Regional Corporation, placed the lands (which came to known as the Colville River Special Area) under a

[42] The Wilderness Society 1998.

[43] Swem 1994.

[44] Sheppard 1994.

[45] U.S. Fish and Wildlife Service 1975d.

[46] U.S. Bureau of Land Management 2008b.

[47] U.S. Department of the Interior 1979b.

type of conservation easement with the Interior Department in exchange for the Department resolving some land ownership and land use issues in favor of the Regional Corporation, including facilitating oil and gas development.[48] The significance of this conservation easement along the Colville for the Arctic peregrine is questionable because, other than the press release announcing it, no mention of it could be found in any of the literature published by the FWS, Interior Department or environmental pressure groups. If the Colville River Special Area designation was so important to the Arctic peregrine's conservation, then it seems ESA proponents would have made more mention of it.

ILLUSORY ILLEGAL TRADE

When the FWS delisted the Arctic peregrine, the agency stated, "[t]he act...prohibited the taking of peregrines from the wild for the sport of falconry."[49] On paper the ESA prohibited falconers from taking Arctic peregrines from the wild because, after all, the Act prohibits take of listed species except with the FWS's permission. But so, too, do other federal laws, most notably the Migratory Bird Treaty Act.

In reality, however, the capture of arctic falcons for falconry was simply a non-issue. Ted Swem, FWS biologist in Alaska, said that the impact of illegal trade was "negligible to non-existent" and captive-raised falcons had been supplying the falconry market.[50] In the early 1980s the FWS's Division of Law Enforcement was convinced peregrines were being taken from the wild to supply illegal international trade in falcons for the sport of falconry. The Division conducted an elaborate sting operation known as Operation Falcon, which was a fiasco because there simply was not a large illegal trade in wild U.S. peregrines. Ironically, during the course of Operation Falcon, the FWS was itself the largest source of wild-caught falcons.[51]

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[48] U.S. Department of the Interior 1979b.

[49.] U.S. Fish and Wildlife Service 1994f.

[50.] Swem 1994.

[51.] Yet, "the 400 birds [both peregrines and non-endangered gyrfalcons, another species of North American falcon] which USFWS agents estimated were involved in black-market trading between 1981 and 1984 all but melt under scrutiny." (McKay 1989, p.207). "In the United States, during the period of Operation Falcon, the biggest supplier of wild falcons for export to the Middle East was the United States government." (Ibid). From 1981-1984, "[t]he biggest smugglers in the United States were the Ciesielskis [two German brothers who were notorious falcon smugglers] who paid $112,000 over more than two years for twenty-two falcons supplied by a single source-the United States government." (McKay 1989, p.208) In fact, "[e]very falcon sold to the Ciesielskis was either trapped from the wild by [Jeff] McPartlin [a U.S. citizen convicted in 1971 on federal felony

Another reason Operation Falcon was not relevant to the Arctic peregrine is that at the time of the operation the FWS stated the only peregrines involved were those of the *anatum*, or American, sub-species, not the *tundrius*, or Arctic, sub-species.[52] Another irony is that at the very time the FWS was carryout out Operation Falcon the agency proposed and finalized the downlisting of the Arctic peregrine in Alaska from endangered to the less-imperiled status of threatened. If illegal trade was a threat to the Arctic peregrine then it is hard to see why the FWS would have decreased protection for the sub-species under the ESA. Even so, when the FWS proposed to downlist the Arctic peregrine in 1983 the agency raised the specter of illegal international trade.[53] But when the FWS finalized the peregrine's downlisting in 1984, no such mention was made of illegal international trade.[54] Either illegal trade was imperiling the Arctic peregrine or the population in Alaska was secure enough to warrant downlisting. The latter was the case, but the FWS wanted to have it both ways. A more in-depth examination of Operation Falcon and what a sham it was is in the profile of the American peregrine falcon.

PESTICIDE MONITORING

Monitoring pesticide levels in Arctic peregrine falcons was one of the conservation efforts undertaken by the FWS, but it was of very minor significance compared with the DDT ban and protection afforded by the peregrine's remote and inaccessible habitat. According to the FWS, however, pesticide monitoring played a key role in the Arctic peregrine's conservation. "[R]esearch and recovery actions funded and carried out under the Endangered Species Act had

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charges of illegally transporting falcons across the U.S. border from Canada, hired by FWS to infiltrate the "illegal" falcon trade] or taken from nests in Alaska by wildlife service agents." Other than the Ciesielskis, "[n]o other person was convicted in the United States-or even charged-for exporting wild gyrfalcons or peregrines to the Middle East. " (McKay 1989, p.207).

[52] U.S. Fish and Wildlife Service 1986.

[53] "Undocumented stories of high prices paid for some peregrine falcons in the past have misled many into thinking this species is an extraordinarily valuable commercial item in the world. The Service finds the wold market value of peregrines has usually ranged from $150 to $2,500 per bird in the past deCade based usually upon degree of training, source of stock, and age and sex of the bird. This compares with the $5,000 to $20,000 paid for some highly prized wildlife. Falconers in the Middle East (a group frequently mentioned to be needing peregrine falcons) generally prefer other species of large falcons for hunting purposes. Removal of young falcons from some specific nest sites has been of lonely local importance in the past in the possible reduction of peregrine falcon numbers. Captive-produced peregrine falcons may meet much of the future demand for birds to be used in falconry when restoration efforts for extirpated and other population have been largely satisfied. This will probably not be a major source for falconry purposes for some time, perhaps late in this decade." (U.S. Fish and Wildlife Service 1983c, p.8798).

[54] U.S. Fish and Wildlife Service 1984b.

been essential to protecting breeding and migrating falcons so that the diminished populations could recover and rebuild," according to the agency.[55] In part, these research efforts consisted of monitoring pesticide levels. Beginning in 1984, and then repeated in 1989 and 1995, the FWS measured the thickness of Arctic peregrine falcon eggs in order to determine whether DDT residues were resulting in abnormally thin eggs. The FWS collected at least ten eggs in each of the three monitoring periods.[56]

If pesticide is one of the main conservation measures taken under the ESA, then it is a very thin thread on which to hang a portion of the Arctic peregrine's purported success under the Act. There are several reasons why pesticide monitoring is thin thread. First, the ESA was not necessary for pesticide monitoring to be conducted. Monitoring could have been carried out by federal or state authorities independent of the ESA. Second, the ESA's key operative provisions, the law's "teeth"—its ability to restrict use of land and water—were not necessary for monitoring to occur. Third, it is questionable to what degree the monitoring program was necessary for Arctic peregrines. One of the goals in the Arctic peregrine's recovery plan was that female peregrines needed to have less than 5 ppm (parts per million) of DDE in eggs, and this was achieved between 1984 and 1988. "However, it is now apparent that this objective was inappropriate; normal reproduction was occurring for several years before the average concentration declined to 5 ppm and may have occurred while residues exceeded 10 ppm," noted the FWS in 1993.[57] But at the time, not with 1993 hindsight, the 5 ppm. standard was highly questionable. In 1983, the FWS observed, "recent samples showing less than 10% of the adult female falcons migrating into the Arctic each spring have levels of DDT contamination sufficient to reduce their natural reproductive potential."[58] So the other 90% of female falcons had normal reproductive rates.

The other recovery goal that addressed pesticide levels was eggshell thickness. The recovery plan specified that eggshells could be no more than 10.0% thinner than historic measurements for a period of ten or more years. The reasoning behind this stemmed from years

[55] U.S. Fish and Wildlife Service 1994f.

[56] Ambrose 2000.

[57] U.S. Fish and Wildlife Service 1993b, p.51040.

[58] U.S. Fish and Wildlife Service 1983c, p.8796.

of observations that indicated if eggshells were too thin reproductive failure increased. "Subsequent field work has shown this to be false," stated the FWS the 1993. "Although the degree of thinning has gradually decreased over time, shells collected in arctic Alaska still average 12.5 percent thinner than pre-DDT era shells. Reproduction, however has been sufficient to fuel population growth since the 1970's."[59]

The contribution of pesticide monitoring to the Arctic peregrine's resurgence was very marginal not only because of eggshell data but also because of the peregrine's reproductive success. By the time the FWS initiated the monitoring program in 1984, the Arctic peregrine's population in Alaska was already increasing and continued to increase steadily over the next ten years until delisting in 1994. The FWS knew the population was increasing because of annual nest monitoring. Similar population trends for Arctic peregrines in Canada also supported these data. In addition, starting in 1980 and continuing until delisting in 1994, productivity, as measured in the number of young/pair/year, varied from 1.3-2.0, which resulted in a 9.0% average annual population growth rate.[60]

POLITICAL TAXONOMY

In 1968, taxonomists recognized a new subspecies of peregrine falcon, the Arctic peregrine, or *falco peregrinus tundrius*. It appears this occurred more for political than scientific reasons. "Taxonomists have recognized some 20 or so subspecies of peregrine falcon around the world, but the difference between the various subspecies is often extremely slight and in one instance is mostly political," according to an article that appeared in the prestigious journal, *Science*. "In 1968 the peregrine population of the Canadian arctic was given the subspecies name of *tundrius* in order that peregrines surviving west of the Rockies (subspecies *anatum*) could be put on the endangered species list."[61]

[59] U.S. Fish and Wildlife Service 1993b, p.51040.

[60] U.S. Fish and Wildlife Service 1994g, p.50802.

[61] Wade 1978, p.1055.

Tom Cade and Bill Burnham of the Peregrine Fund, two of the leading experts on peregrine falcon conservation in North America, essentially confirmed this explanation. According to them:

> "After the [1965] Wisconsin Conference [on the conservation of the peregrine falcon] the U.S. Fish and Wildlife Service (FWS) became concerned about the legal status of the Peregrine in the United States. At that time there was no federal protection for the species. Some FWS officials began considering the possibility of listing the peregrine as an "endangered species" under one of the earlier versions of endangered species protection. A technical problem arose, however, because prior to the 1973 Endangered Species Act the law provided that only full species or "recognized" subspecies could be listed, and all continental Peregrines from the Arctic to Mexico were considered the same subspecies, *Falco peregrinus anatum*, the Duck Hawk. Although a clear case could be made for the endangered status of Peregrines in southern Canada and the coterminous United States, experts thought at the time that no serious losses had occurred among the large populations of Peregrines nesting in the Far North.
>
> This problem was solved in 1968 when our good colleague and Arctic-traveling companion Clayton White described the arctic falcons as a separate subspecies, *F.p. tundrius*. Clay had been studying the biosystematics of North American Peregrines for his doctoral degree at the University of Utah, and when John Aldrich, Chief Scientist for the FWS's Division of Migratory Birds, learned that Clay had found significant morphological differences between the tundra-inhabiting falcons and those nesting south of the tree line, he encouraged him to describe the former as a new subspecies, clearing the way to considered the threatened status of the southern birds."[62]

The Arctic peregrines political taxonomy is yet another example in which the FWS and peregrine conservationists manipulated science in order to serve the more expedient interest of peregrine conservation. The other notable example is when the FWS and falconers justified the

[62] Cade and Burhnam 2003, pp.15-16.

introduction of non-native peregrines to the salt marshes of the mid-Atlantic coast, something that is examined in the profile of the American peregrine falcon.

POLITCAL DOWNLISTING

In 1984 the FWS downlisted the Arctic peregrine from endangered to the less-imperiled status of threatened. While the FWS's ostensible reason for this was the Arctic peregrine's improved status, the actual reason was due problems the FWS encountered with the conservation of the American, or *anatum*, peregrine falcon sub-species in the lower 48 states (a fuller explanation of this is contained in the profile of American peregrine falcon). The FWS needed to find a regulatory solution for the captive bred "*anatum*" peregrines released in the Eastern and Midwestern U.S. that were in fact hybrids of various subspecies of peregrines not native to the U.S. As it turned out after releases began, these hybrids were not protected under the ESA because the Act did not extend to non-native species in the U.S. In an effort to fix the problem the FWS resorted to legal legerdemain but needed to conceal it from Congress, the media and the general public. The release of captive peregrines was enormously popular, and any bad publicity was unwelcome, especially if supporters in Congress and the general public found out these "endangered" peregrines were not, in fact, protected by the ESA or any other federal wildlife law, such as the Migratory Bird Treaty Act. So the Interior Department came up with the ploy of downlisting the Arctic peregrine and included in the downlisting some a legal maneuver that extended federal protection to the hybrid non-native anatum peregrines. The FWS implemented this ploy by placing it in the Federal Register, where it was unlikely to attract much, if any, attention.

BELATED DELISTING

The FWS should have delisted the Arctic peregrine falcon years before 1994, and there are a couple pieces of evidence for this.

RECOVERY CRITERIA

In 1993, when the FWS proposed to delist the Arctic peregrine, the agency stated that the four recovery criteria had either been achieved by the early-to-mid 1980s or were invalid. These four criteria and when they were achieved were:

1) At least 36 pairs of peregrines occupying two regions in Alaska. This was achieved for the first time in 1984 and the population continued to increase so that by 1992, the year used data for the delisting proposal, there were 75 pairs. "The number of pairs now occupying breeding territories greatly exceeds the original estimate of the number of available territories" stated the FWS.[63]

2) An average productivity of at least 1.4 young per pair was achieved by 1982. Productivity varied between 1.4-2.0 from 1982-1992. "The objective of 1.4 young per pair was based upon early studies of arctic peregrine falcons," states the FWS.[64] This suggests the FWS used a standard that was out of date and inappropriate.

3) DDE residues in eggshells had to average less than 5 ppm. (parts per million). This was achieved at some point between 1984 and 1988. "However, it is now apparent that this objective was inappropriate; normal reproduction was occurring for several years before the average concentration declined to 5 ppm. and may have occurred while residues exceeded 10 ppm.," the FWS stated.[65] "Therefore the Service believes that it is most appropriate to gauge 'acceptable' contaminant exposure by reproductive success." The FWS concluded, "[R]eproductive success has been sufficient to allow population growth since the late 1970's."[66]

4) Eggshells had to average no less than 10% of eggshell thickness prior to when DDT came into

[63] U.S. Fish and Wildlife Service 1993b, p.51040.

[64] U.S. Fish and Wildlife Service 1993b, p.51040.

[65] U.S. Fish and Wildlife Service 1993b, p.51040.

[66] U.S. Fish and Wildlife Service 1993b, p.51040.

use. "This assumed that peregrine falcons could not reproduce normally if shells were more than 10 percent thinner than normal. Subsequent field work has shown this to be false," stated the FWS.[67] "Although the degree of thinning has gradually decreased over time, shells collected in arctic Alaska still average approximately 12.5 percent thinner than pre-DDT era shells. Reproduction, however, has been sufficient to fuel population growth since the late 1970's."[68]

Indeed, the population growth rate from 1980-1993 averaged 9.0% per year.[69] In addition, at a 1985 conference on the conservation of the peregrine falcon, held in Sacramento and organized by the Peregrine Fund, research presented found that so long as eggshell thickness did not decline below 17% of historical values, peregrine populations would be stable or increase.[70] While the papers presented at the conference were not available to the public until 1988, FWS peregrine biologists from Alaska attended the conference, and even presented a paper of their own, so they were well aware of the apparent 17% threshold by 1985.

The relevance of all of this to Arctic peregrine recovery is that by 1985 the FWS had data showing that from 1979-1984 Arctic peregrine eggshells averaged 13.4% thinner than before DDT came into use.[71] "Although arctic peregrine falcon eggs remain vulnerable to an increase in exposure to organochlorines, eggshell thinning has been insufficient to prevent widespread population recovery since the late 1970's," admitted the FWS in 1994.[72] As is clear, the FWS knew by the mid-1980s that eggshells were thick enough so that the Arctic peregrine's population could increase at a healthy rate. Furthermore, as the FWS admitted when downlisting occurred in the mid-1980s, there was a bias in eggs collected for measurement of eggshell thickness, and the result was that eggshell thinning was likely exaggerated.

Due to the foregoing data relative to the recovery criteria, the FWS stated; "knowledge gained subsequent to the writing of the recovery plan indicates that the two objectives that have

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[67] U.S. Fish and Wildlife Service 1993b, p.51040.

[68] U.S. Fish and Wildlife Service 1993b, p.51040.

[69] U.S. Fish and Wildlife Service 1994g, p.50802.

[70] Kiff 1988.

[71] U.S. Fish and Wildlife Service 1994g, 50801.

[72] U.S. Fish and Wildlife Service 1994g, 50801.

not been met were based on incorrect assumptions. The Service concludes, based on current information, that the basic goals underlying all four objectives have been reached."[73] While it is perfectly understandable that the recovery plan would contain recovery criteria that later turned out to be invalid or inappropriate, the FWS's delay in acting upon these data and delisting the Arctic peregrine is much less understandable. Although the recovery plan recommended the recovery criteria be met for ten consecutive years in order for delisting to occur, the FWS was not bound to adhere to this because recovery criteria are discretionary. More importantly, data in the mid-to-late 1980s clearly showed the Arctic peregrine was healthy and merited delisting.

DOWNLISTING vs. DELISTING

By comparing the Arctic peregrine's downlisting in 1984 to the sub-species' delisting a decade later provides another indication that the FWS's decisions about both status changes was fairly arbitrary. First, if the peregrine merited downlisting in 1984, then it certainly merited delisting five years later in 1989 because, according to the recovery plan, delisting could occur if the four recovery criteria were met or exceeded for five consecutive years after downlisting.

Second, the speed with which the FWS downlisted Arctic peregrine is all the more an indication that downlisting was motivated not by the Arctic peregrine's status but by the urgent need to cover-up regulatory problems associated with hybrid American peregrines. When downlisting occurred in 1984, the FWS did not even cite any of the goals for downlisting, as specified in the recovery plan, in order to justify the change in status. As the FWS frequently points out, recovery plans and the delisting criteria contained in the plans are not legally binding and so should be viewed more as flexible guidelines rather than rigid prescriptions. In the case of the Arctic peregrine, given that the sub-species' population in Alaska started to increase at least by the late 1970s and that productivity was also at a healthy level by then, the total population goal for delisting was inappropriate. Indeed, in 1991 the Peregrine Fund, the foremost authority on peregrines in the U.S., recommended the Arctic peregrine be delisted.[74]

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[73] U.S. Fish and Wildlife Service 1994g, 50801.

[74] Burnham and Cade 1992.

Given that the FWS chose to ignore the recovery criteria in the case of downlisting, the agency could have done the same for delisting.

OPPOSITION TO DOWNLISTING

When the FWS made the decision to downlist the Arctic peregrine in 1984, some were not happy, and one reason had nothing to do with the peregrine's status. "Several commenters [to the proposed downlisting] from Alaska indicated that the change to threatened for the Arctic peregrines could produce several undesirable results," according to the FWS. "Monies for studies on the bird might be in shorter supply with a 'lower' status level."[75] This rationale is identical to that expressed by some of those who opposed delisting the American peregrine falcon in the late 1990s, as well as some who worried about the bald eagle's delisting in 2007. In all of these cases, researchers and advocates were concerned that reclassification would mean the federal funding gravy train would slow down or even halt. Those expressing these sentiments have, of course, allowed their narrow interests to blind them to the ultimate purpose of the ESA, which is to delist species, not keep them listed indefinitely as sources of research funding.

CONCLUSIONS

The Arctic peregrine falcon cannot be considered a success story of the ESA because virtually all of its rebound is due to two factors totally unrelated to the Act; the DDT ban, and its remote and inaccessible habitat in far northern Alaska. In addition, the vast majority, approximately 83%, of the Arctic peregrine sub-species lives in Canada and Greenland, not the U.S. This further diminishes the significance of the ESA to the sub-species' conservation. Habitat protection undertaken for the peregrine under the auspices of the ESA was of very, very minor significance. Furthermore, the Act's land-use controls, which make it such a cherished law by its proponents, were not necessary for pesticide monitoring, or any other type of monitoring for that matter, to occur. The resurgence of the Arctic peregrine falcon is cause for celebration but not because of the Endangered Species Act.

[75] U.S. Fish and Wildlife Service 1984b, p.10523.