■ 2. Revise paragraphs (a)(1) and (a)(2) of § 1200.7 to read as follows:

§ 1200.7 What are NARA logos and how are they used?

(a) * * *

(1) The Federal Records Center Program;

FEDERAL RECORDS CENTERS
of the National Archives and Records Administration

(2) The National Historical Publications and Records Commission;

NHPRC
DOCUMENTING DEMOCRACY
National Historical Publications and Records Commission

* * * * *

Dated: May 3, 2006.

Allen Weinstein,

Archivist of the United States.

[FR Doc. 06–4302 Filed 5–8–06; 8:45 am]

BILLING CODE 7515–01–P

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018 AG23

Endangered and Threatened Wildlife and Plants; Determination of Status for 12 Species of Picture-Wing Flies From the Hawaiian Islands

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), determine endangered status pursuant to the Endangered Species Act of 1973, as amended (Act), for 11 species of Hawaiian picture-wing flies—*Drosophila aglaia*, *D. differens*, *D. hemipeza*, *D. heteroneura*, *D. montgomeryi*, *D. musaphilia*, *D. neoclavisetae*, *D. obatai*, *D. ochrobasis*, *D. substenoptera*, and *D. tarphytrichia*. We determine threatened status pursuant to the Act for one species of Hawaiian picture-wing fly—*D. mulli*. This final rule implements the Federal protections provided by the Act for these 12 species of Hawaiian picture-wing flies.

DATES: This final rule is effective June 8, 2006.

ADDRESSES: Comments and materials received, as well as supporting documentation used in the preparation of this final rule, will be available for public inspection, by appointment, during normal business hours at the Pacific Islands Fish and Wildlife Office, U.S. Fish and Wildlife Service, 300 Ala Moana Boulevard, Room 3–122, Box 50088, Honolulu, HI 96850.

FOR FURTHER INFORMATION CONTACT: Patrick Leonard, Field Supervisor, Pacific Islands Fish and Wildlife Office (see **ADDRESSES** section) (telephone 808/792–9400; facsimile 808/792–9581). Persons who use a telecommunications device for the deaf (TDD) may call the Federal Information Relay Service (FIRS) at 800/877–8339, 24 hours a day, 7 days a week.

SUPPLEMENTARY INFORMATION:

Background

Many of the major ecological zones of the earth are represented in Hawaii, from coral reef systems through rain forests to high alpine deserts, in less than 10,800 square kilometers (6,500 square miles) of land. The range of topographies creates a great diversity of climates. Windward (northeastern) slopes can receive up to 1,000 cm (400 in) of rain per year, while some leeward coasts that lie in the rain shadow of the high volcanoes are classified as deserts, receiving as little as 25 cm (10 in) of rain annually. This topographic and climatic regime has given rise to a rich diversity of plant communities, including coastal, lowland, montane, subalpine, and alpine; dry, mesic, and wet; and herblands, grasslands, shrublands, forests, and mixed communities (Gagne and Cuddihy 1990). These habitats and plant communities in turn support one of the most unique arthropod faunas in the world, with an estimated 10,000 endemic species (Howarth 1990). Unusual characteristics of Hawaii's native arthropod fauna include the presence of relict species; the absence of social insects, such as ants and termites; endemic genera; extremely small geographic ranges; adaptation of species to very specific conditions or environments; novel ecological shifts; flightlessness; and loss of certain antipredator behaviors (Zimmerman 1948, 1970; Simon *et al.* 1984; Howarth 1990). Native vegetation on all the main Hawaiian Islands has undergone extreme alteration because of past and present land management practices, including ranching, introduction of nonnative plants and animals, and agricultural development (Cuddihy and Stone 1990).

Each species of Hawaiian picture-wing fly described in this document is

found only on a single island, and the larvae of each are dependant upon only a single or a few related species of plants (see Table 1). These host plant species are threatened by a variety of factors, including their direct destruction by pigs, goats, cattle, rats, and competition with nonnative plants, and the indirect effects of soil disturbance which further promotes the spread of nonnative species (see Factors A and C below). In addition to the habitat alteration, the picture-wing flies included in this rule are threatened by a variety of introduced predatory species including yellow jackets and several ant species. This suite of threats to the picture-wing flies and its habitat are discussed in more detail in the Summary of Factors Affecting the Species section.

Flies in the Drosophilidae family in Hawaii represent one of the most remarkable cases of specific adaptation to local conditions that has been found in any group of animals (Hardy and Kaneshiro 1981). These insects are distributed throughout the eight main Hawaiian Islands (i.e., Hawaii, Maui, Oahu, Kauai, Molokai, Lanai, Niihau, and Kahoolawe), and each species is typically found on a single island (Carson and Yoon 1982).

The general life cycle of Hawaiian Drosophilidae is typical of that of most flies: After mating, females lay eggs from which larvae (immature stage) hatch; as larvae grow they molt (shed their skin) through three successive stages (instars); when fully grown, the larvae change into pupae (a transitional form) in which they metamorphose and emerge as adults.

Breeding generally occurs year-round, but egg laying and larval development increase following the rainy season as the availability of decaying matter, which the flies feed on, increases in response to the heavy rains (K. Kaneshiro, in litt., 2005b). In general, *Drosophila* lay between 50 and 200 eggs in a single clutch. Eggs develop into adults in about a month, and adults generally become sexually mature one month later. Adults generally live for one to two months.

As a group, Hawaiian Drosophilidae can be found in most of the natural communities in Hawaii. They have developed and adapted ecologically to a tremendous diversity of ecosystems ranging from desert-like habitats, to rain forests, to swampland (Kaneshiro and Kaneshiro 1995). While the larval stages of most species are saprophytic (feeding on decaying vegetation, such as rotting leaves, bark, flowers, and fruits), some have become highly specialized, being carnivorous on egg masses of spiders, or feeding on green algae growing underwater on boulders in streams (Kaneshiro and Kaneshiro 1995).

Hawaiian *Drosophila*, and in particular picture-wing *Drosophila*, are unique among living organisms because adaptive radiation (the evolution of an ancestral species, which was adapted to a particular way of life, into many diverse species, each adapted to a different habitat) has resulted in unparalleled biological diversity within a single large, closely related group of species (Foote and Carson 1995). The banding patterns of all five major chromosome arms among 106 species of Hawaiian picture-winged *Drosophila* revealed a 5 million-year-old evolutionary history rooted to species on the island of Kauai (Carson 1992). This work on the evolutionary history of Hawaiian *Drosophila* augments an extensive systematic treatment of the genus (Hardy 1965; Kaneshiro 1976).

Unlike numerous Hawaiian insects known only from their original taxonomic descriptions, many aspects of Hawaiian Drosophilidae biology have been researched, including their internal and external morphology, behavior, ecology, physiology, biochemistry, the banding sequence of giant chromosomes, and the structure of their DNA (Kaneshiro and Kaneshiro 1995). More than 80 research scientists and over 350 undergraduates, graduate students, and postdoctoral fellows have participated in research on many species of the Hawaiian Drosophilidae, resulting in over 600 scientific publications.

Because a large number of sites across the Hawaiian Islands have been surveyed since the 1960s using bait stations that are not species-specific, researchers have a relatively good understanding of the distribution of *Drosophila* species and how that distribution has changed over time. Biologists have observed a general decline of the Hawaiian Drosophilidae along with other components of the native ecosystem. As noted by Spieth (1980), during the early part of the century, the Tantalus area (northeast of Honolulu) was a major spot for collecting *Drosophila* species. Since 1971, routine sampling in the Tantalus area has documented dramatic declines in the abundance of some *Drosophila* species and in other cases local extirpations (Foote and Carson 1995).

All 12 species described below belong to the species group commonly known as the picture-wing *Drosophila*. This group consists of 106 known species, most of which are relatively large with elaborate markings on the otherwise clear wings of both sexes, the pattern of which varies among species (Hardy and Kaneshiro 1981; Carson 1992). The picture-wing *Drosophila* have been referred to as the ''birds of paradise'' of the insect world because of their relatively large size, colorful wing patterns, and the males' elaborate courtship displays and territorial defense behaviors.

Males occupy territories that serve as mating arenas, or leks, to which receptive females are attracted. The male *Drosophila* use different techniques to ward off competing suitors. One species, *Drosophila heteroneura*, butts heads like bighorn sheep. Others grasp one another with legs and wings in a wrestling match. Yet another tries to intimidate with noise, creating a buzzing roar with muscles from its abdomen. When the male has secured his position in the lek, he performs a detailed choreography of behaviors for the females visiting that site. If he does not convey the right moves and messages, she leaves without mating. Each species has its own ritual; some include dancing around the female, buzzing of wings at a specific pitch, placing the male's head under the female's wing, tongue-tasting, or dousing the female with pheromone.

The primary dataset we used to document observations of these picture-wing flies spans the years 1965 to 1999 (K. Kaneshiro, in litt., 2005a). Additional data were obtained from individuals familiar with particular species and locations. Many sites were surveyed infrequently or have not been surveyed in a long time while others have relatively complete records from 1966 to 1999. In this rule, when we state the date a species was last observed in a particular year, we do not intend to imply that comprehensive surveys have been conducted in subsequent years, only that the specified year was the last year that the species was located.

TABLE 1.—DISTRIBUTION OF 12 HAWAIIAN PICTURE-WING FLIES BY ISLAND, GENERAL HABITAT TYPE, AND PRIMARY HOST PLANT(S)

Species	Island	General habitat type	Primary host plant(s)
Drosophila aglaia	Oahu	Mesic forest	*Urera glabra*
D. differens	Molokai	Wet forest	*Clermontia* sp.
D. hemipeza	Oahu	Mesic forest	*Cyanea* sp., *Lobelia* sp., and *Urera kaalae*
D. heteroneura	Hawaii	Mesic to wet forest	*Cheirodendron* sp., *Clermontia* sp., *Delissea* sp.
D. montgomeryi	Oahu	Mesic forest	*Urera kaalae*
D. mulli	Hawaii	Wet forest	*Pritchardia beccariana*
D. musaphilia	Kauai	Mesic forest	*Acacia koa*
D. neoclavisetae	Maui	Wet forest	*Cyanea* sp.
D. obatai	Oahu	Dry to mesic forest	*Pleomele aurea* and *Pleomele forbesii*
D. ochrobasis	Hawaii	Mesic to wet forest	*Clermontia* sp., *Marattia* sp., and *Myrsine* sp.
D. substenoptera	Oahu	Wet forest	*Cheirodendron* sp. and *Tetraplasandra* sp.
D. tarphytrichia	Oahu	Mesic forest	*Charpentiera* sp.

Discussion of the Species

Drosophila aglaia

Drosophila aglaia was first recorded in 1946, on Mount Kaala on the island of Oahu, and described by Hardy (1965). *D. aglaia* is a small species, 0.15 inches (in) (4.0 millimeters (mm)) in length, with wings 0.2 in (5.0 mm) long. It has a yellow head that is approximately one-third wider than long. The eyes are brown, and the antennae are yellow, tinged with brown. The thorax is clear yellow with three broad brown stripes on the top, and the legs are yellow. The abdomen is brown with a large yellow spot on each of the hind corners. The wings are predominantly clear with irregular but characteristic brown markings, and are about two and three-quarter times longer than wide.

Drosophila aglaia is historically known from five localities in the Waianae Mountains of Oahu between 1,400 and 2,800 feet (ft) (427 to 853 meters (m)) above sea level. During 50 survey dates between 1966 and 1990, 28 individuals were observed (Kaneshiro in litt., 2005a). The 5 sites include: One lowland mesic *Diospyros* sp. and *Metrosideros* sp. (ohia) forest site in Makaleha Valley; two lowland mesic *Acacia koa* (koa) and ohia forest sites at Peacock Flats (Kapuahikahi Gulch) and Palikea; one site in diverse mesic forest at Puu Kaua; and a lowland, dry to mesic forest site at Puu Pane (K. Kaneshiro, in litt., 2005a).

The last observation of this species occurred in 1997 during the last survey of the Palikea site. The species has not been observed at the other four historic sites since 1970 or 1971 despite subsequent surveys. However, two of the sites (Kapuahikahi Gulch and Makaleha Valley) have not been surveyed since the 1970s and one site, Puu Pane, was surveyed only once again in 1991 (K. Kaneshiro, in litt., 2005a).

Drosophila aglaia is restricted to the natural distribution of its host plant, *Urera glabra* (family Urticaceae), which is a small shrub-like endemic tree. The larvae of *D. aglaia* develop in the decomposing bark and stem of *U. glabra.* This plant does not form large stands, but is infrequently scattered throughout slopes and valley bottoms in mesic and wet forest habitat on Oahu. In the Waianae Mountains on the west side of Oahu, this tree occurs infrequently in mesic forest.

Drosophila differens

Drosophila differens was described by Hardy and Kaneshiro (1975) from specimens first recorded at South Hanalilolilo, Molokai, in 1972. This species is larger than most picture-wings, approximately 0.3 in (7.0 mm) in length, with wings 0.3 in (8.3 mm) long. *D. differens* has an entirely or predominantly yellow face and characteristic markings extending to the tip of the wings.

Drosophila differens is historically known from three sites on private land between 3,800 and 4,500 ft (1,158 to 1,372 m) above sea level, within montane wet ohia forest (HBMP, in litt., 2005; K. Kaneshiro, in litt., 2005a). During 40 surveys between 1965 and 1999, 63 individuals were recorded. At Hanalilolilo, the species was observed on eight survey dates between 1967 and 1983, but was not observed on three subsequent survey dates, the most recent being 1999. At a second site, Kaunuohua, which was only surveyed twice, individuals were observed in 1969 but not in 1999. At the third site, Puu Kolekole, individuals were documented in 1969 and again in 1999 (K. Kaneshiro, in litt., 2005a). An estimated 75 to 90 percent of *D. differens*' total potential habitat has been surveyed (K. Kaneshiro, pers. comm. 2006).

Montgomery (1975) found that *Drosophila differens* larvae inhabit the bark and stems of *Clermontia* sp. (family Campanulaceae) in wet rainforest habitat (Kaneshiro and Kaneshiro 1995). Approximately 10 to 25 percent of *D. differens*' potential habitat on steep, difficult to access areas and on State Natural Reserve lands surrounding its known range remains unsurveyed for the species (Science Panel 2005; K. Kaneshiro, pers. comm. 2006).

Drosophila hemipeza

Hardy (1965) described *Drosophila hemipeza* from specimens recorded at Pupukea, Oahu, in 1952. The thorax of *D. hemipeza* is predominantly yellow with two brown stripes on the top, and the legs are entirely yellow. This species is 0.2 in (5.0 mm) long; the front legs are very slender with short straight bristles; and the wings are 0.2 in (6.0 mm) in length, slender, and somewhat pointed.

Drosophila hemipeza is restricted to the island of Oahu where it is historically known from seven localities between 1,600 and 2,800 ft (488 to 853 m) above sea-level (not including the Pupakea site of discovery which is considered an extripated population). Since formal surveys began for the species, 49 individuals were recorded during a total of 56 different survey dates between 1965 and 1999 (K. Kaneshiro, in litt., 2005a). The species has been documented from seven sites, with survey history at these sites as follows: (1) The species was documented in 1969 but not in subsequent surveys spanning until 1972 in the Makaleha Valley; (2) individuals were detected at Puu Kaua in 1971 but not in subsequent surveys as recently as 1999; (3) at Kaluaa Gulch, the species was observed in 1971 but not in 1972; (4) in Makaha Valley, the species was detected in 1971 and no surveys have been conducted since; (5) at Palikea the last observation occurred in 1997, also the date of the last survey; and (6) the species has not been detected at the Mauna Kapu site since 1975 despite

subsequent surveys spanning until 1983; (7) the species was detected at Pauoa Flats in the Koolau Range that was surveyed three times between 1973 and 1974, with one observation of one individual during the last survey in 1974 (K. Kaneshiro, in litt., 2005a).

Montgomery (1975) determined that *Drosophila hemipeza* larvae feed within decomposing portions of several different mesic forest plants. The larvae inhabit the decomposing bark of *Urera kaalae* (family Urticaceae), a federally-endangered plant (USFWS 1991, 1995) that grows on slopes and in gulches of diverse mesic forest. In 2004, only 41 individuals of *U. kaalae* were known to remain in the wild (USFWS, in litt., 2004). The larvae also feed within the decomposing stems of *Lobelia* sp. (family Campanulaceae) and the decomposing bark and stems of *Cyanea* sp. (family Campanulaceae) in mesic forest habitat (Kaneshiro and Kaneshiro 1995; Science Panel 2005).

Drosophila heteroneura

R.C.L. Perkins initially described this species as *Idiomyia heteroneura*, based on specimens from Olaa on the island of Hawaii (Perkins 1910). This taxon was later transferred to the genus *Drosophila* (Hardy 1969), forming its presently accepted name. *Drosophila heteroneura* has very large spots on the bases of the wings and the males have a broad head with the eyes situated laterally, giving them a hammerhead appearance. The hammer-shaped head and entirely yellow face differentiate it from *D. silvestris*, a closely related species. The thorax is predominantly yellow with several black streaks and markings on top. The legs are yellow except for slight tinges of brown on the ends of the middle and hind femora and tibiae. The wings are hyaline (transparent) and are very similar in markings and venation (vein markings) to those of *D. silvestris*, except that the marking in the front margin of the wing of *D. heteroneura* extends nearly to the marking at the end of the wing. The abdomen is shiny black with a large yellow spot on the top of each segment. This species is about 0.22 in (5.7 mm) in length with wings approximately 0.3 in (7.0 mm) long (Kaneshiro and Kaneshiro 1995).

Drosophila heteroneura has been the most intensely studied of the 12 species discussed in this rule (Kaneshiro and Kaneshiro 1995). This species is restricted to the island of Hawaii where, historically, it was known to be relatively widely distributed between 3,800 and 5,500 ft (1,158 to 1,675 m) above sea level. *D. heteroneura* has been recorded from 24 localities on 4 of the island's 5 volcanoes (Hualalai, Mauna Kea, Mauna Loa, and Kilauea) in 5 different montane environments (Kaneshiro and Kaneshiro 1995; HBMP, in litt., 2005; K. Kaneshiro, in litt., 2005a).

Based on the relatively extensive survey data, the population decline of *Drosophila heteroneura* has been demonstrated clearly. For example, *D. heteroneura* was recorded 760 times during surveys between 1975 and 1979. In the early 1980s, the first disappearance of a *D. heteroneura* population was recorded from the Olaa Forest site in Hawaii Volcanoes National Park (Carson 1986; Foote and Carson 1995). Subsequently, the absence of the species was noted in several other locations in southern and western parts of the island where *D. heteroneura* had previously been relatively common. By the late 1980s, *D. heteroneura* was believed to be extinct until an extremely small population was discovered on private land at Hualalai Volcano in 1993 (Kaneshiro and Kaneshiro 1995). The species was not observed again until 1998 when Foote (2000) recorded six specimens of *D. heteroneura* inhabiting a site at approximately 4,436 ft (1,352 m) above sea level near a host plant species, *Clermontia clermontioides*. *D. heteroneura* was last observed in 2001, at the refuge (D. Foote, pers. comm., 2005).

Drosophila heteroneura larvae primarily inhabit the decomposing bark and stems of *Clermontia* sp. (family Campanulaceae), including *C. clermontioides*, and *Delissea* sp. (family Campanulaceae), but it is also known to feed within decomposing portions of *Cheirodendron* sp. (family Araliaceae) in open mesic and wet forest habitat (Kaneshiro and Kaneshiro 1995).

Drosophila montgomeryi

Drosophila montgomeryi was described by Hardy and Kaneshiro (1971) from specimens collected in the Waianae Mountains of Oahu in 1970. Morphologically, this species appears to be most closely related to *D. pisonia* from the island of Hawaii. It can be distinguished by the narrow, pale brown stripe on each side of the top of the thorax, the long hairs on the front legs, and the second antennal segment, which is yellow, tinged with brown on the top.

Drosophila montgomeryi is historically known from three localities in the Waianae Mountains on western Oahu between 2,000 and 2,800 ft (610 to 853 m) above sea level. The best available information concerning the status of the species at these sites is as follows: (1) One individual was recorded from Kaluaa Gulch during the last survey in 1972; (2) at Palikea, one individual was observed on the last survey date in March 1997; and (3) at Puu Kaua, historically the site with the highest number of total individuals observed, the species was last detected in 1971 despite five subsequent surveys between 1997 and 1999 (K. Kaneshiro, in litt., 2005a).

Montgomery (1975) reported that the larvae of this species feed within the decaying bark of *Urera kaalae,* a federally-endangered plant (USFWS 1991, 1995) that grows on slopes and in gulches of diverse mesic forest (Kaneshiro and Kaneshiro 1995). In 2004, only 41 individuals of *U. kaalae* were known to remain in the wild (USFWS, in litt., 2004).

Drosophila mulli

Drosophila mulli was described by Perreira and Kaneshiro (1990) and named for William P. Mull, the Hawaiian naturalist who first discovered this species. The head of *D. mulli* is yellow on the front and covered with light, silvery grey fuzz. The face of the male is characteristically white, while that of the female is brown. The top of the thorax is brownish yellow and lacks conspicuous markings or stripes. The legs are predominantly yellow, and the front legs of males bear three distinct rows of long, curled hairs. The wings are two and one-half times longer than wide, with distinct brown markings at the base and the tip. The length of the body is 0.17 to 0.2 in (4.3 to 5.0 mm), and the wings are 0.17 to 0.19 in (4.3 to 4.8 mm) long (Kaneshiro and Kaneshiro 1995).

Drosophila mulli is restricted to the island of Hawaii and is historically known from two locations between 3,200 and 4,000 ft (985 to 1,220 m) above sea level. Adult flies are found only on the leaf undersides of the endemic fan palm, *Pritchardia beccariana* (family Arecaceae) which is the only known association of a *Drosophila* species with a native Hawaiian palm species. Individual *P. beccariana* are long-lived (approximately 100 years). Current regeneration of the host plant has been compromised by feral ungulates, rats, and scolytid beetles (see Summary of Factors Affecting the Species section below). The larval feeding site on the plant remains unknown because attempts to rear this species from decaying parts of *P. beccariana* have thus far been unsuccessful (W. P. Mull, Volcano, Hawaii, pers. comm., 1994; Science Panel 2005).

The site of the discovery for *Drosophila mulli* is located within a

State-owned montane wet ohia forest at Olaa Forest Reserve at approximately 3,200 ft (985 m) above sea level. This site was surveyed at least 62 times between 1965 and 2001, with fewer than 10 individuals observed on 4 different dates. The last recorded observation at this site occurred in 2001 (K. Kaneshiro, in litt., 2005a; D. Foote, in litt., 2006). A second locality was discovered in 1999, approximately 9.3 mi (15 km) from the original site within a State-owned montane wet ohia forest site at Upper Waiakea Reserve at approximately 4,000 ft (1,219 m) above sea level (Science Panel 2005; S. Montgomery, pers. comm., 2005a).

Drosophila musaphilia

Hardy (1965) formally described *Drosophila musaphilia* from specimens collected at Kokee, Kauai, in 1952. Although Hardy (1965) originally indicated that *D. musaphilia* is very similar to *D. villosipedis,* more recent work indicates D. musaphilia is most closely related to *D. hawaiiensis* (Kaneshiro *et al.* 1995).

Drosophila musaphilia is characterized by a predominantly black thorax with gray fuzz and a very narrow gray stripe extending down the top. The legs are dark brown to yellow, with the front tibia devoid of ornamentation, and the tips of the legs have abundant long, black hairs on top. The wings are three times longer than wide with characteristic markings of the *D. hawaiiensis* group. The abdomen is dark brown to black and densely covered with brown fuzz. The body length is about 0.2 in (5.0 mm) and the wings 0.207 in (5.25 mm) long (Kaneshiro and Kaneshiro 1995).

Drosophila musaphilia is historically known from only four sites, one at 1,900 ft (579 m) above sea level, and three sites between 3,000 and 3,500 ft (915 to 1,065 m) above sea level. The species has been observed a total of 11 times during 52 different survey dates since its discovery (Kaneshiro and Kaneshiro 1995; K. Kaneshiro, in litt., 2005a). Researchers estimate that 75 percent of *D. musaphilia*'s total potential habitat has been surveyed (K. Kaneshiro, pers. comm. 2006). The best available information concerning the status of the species at these sites is as follows: (1) A single observation of *D. musaphilia* was recorded from one lowland, wet ohia forest site at Wahiawa (Alexander Reservior) in 1968 (this population is believed to be extirpated); (2) at the Halemanu site, the species was observed in 1970 and last observed in 1972 but not in subsequent surveys as recent as 1996; (3) one individual was observed in 1968 at the Kokee (Nualolo Trail) site and not again during numerous surveys through 1999; and (4) individuals were last observed in 1988 at the Pihea Trail site located at 3,000 ft (915 m), but was not relocated in five subsequent surveys between 1989 and 1999 in that area (HBMP, in litt., 2005; Kaneshiro, in litt., 2005a).

Montgomery (1975) determined that the host plant for *Drosophila musaphilia* is *Acacia koa.* The females lay their eggs upon, and the larvae develop in, the moldy slime flux (seep) that occasionally appears on certain trees with injured plant tissue and seeping sap. Understanding the full range of *D. musaphilia* is difficult because its host plant, *Acacia koa,* is fairly common and stable within, and surrounding, its known range on Kauai; however, the frequency of suitable slime fluxes occurring on the host plant appears to be much more restricted and unpredictable (Science Panel 2005).

Drosophila neoclavisetae

Drosophila neoclavisetae was described by William Perreira and Kenneth Kaneshiro (1990) from specimens collected at Puu Kukui, West Maui, in 1969. It was named for its obvious affinities with *D. clavisetae* from East Maui. Both species are similar in wing and thorax markings, and they share a specialized part of the courtship behavior. The male bends its abdomen up over its head, produces a bubble of liquid (believed to be a sex pheromone) from its anal gland and then vibrates the abdomen, fanning the scent toward the female. Both *D. neoclavisetae* and *D. clavisetae* are members of the *D. adiastola* species group (Perreira and Kaneshiro 1990), and while other species in this group perform similarly unusual mating dances, the behavior is highly exaggerated in *D. clavisetae* and *D. neoclavisetae* (Kaneshiro and Kaneshiro 1995).

Drosophila neoclavisetae is between 0.2 and 0.25 in (6.0 and 6.4 mm) in length, with wings 0.26 to 0.3 in (6.5 to 7.0 mm) long. It is distinguished by its amber brown head and yellow face, with the middle portion raised to form a prominent ridge. The thorax is predominantly reddish brown with a distinct brown median stripe, bordered on each side by two brown stripes. The legs are yellow, with brown on the femora and a distinct brown band on the tips of the tibiae. The wings are broad and rounded, more than twice as long as wide, and with the front portion covered with brown markings and large clear spots tinged light yellow. It shares with *D. clavisetae* an extra cross-vein in the wing, which distinguishes both these species from the other species of the *D. adiastola* group. The abdomen is dark brown and black with numerous long hairs on the hind segments of the male (Kaneshiro and Kaneshiro 1995).

Two populations of *Drosophila neoclavisetae* were found historically along the Puu Kukui Trail within montane wet ohia forests on State land in West Maui. One habitat site was found in 1969 at 4,440 ft (1,353 m) and the other in 1975 at 3,500 ft (1,067 m) above sea level (Kaneshiro and Kaneshiro 1995; HBMP, in litt., 2005; K. Kaneshiro, in litt., 2005a). Fewer than 10 individuals have been observed despite attempts to relocate the species through 1997 (Kaneshiro and Kaneshiro 1995; K. Kaneshiro, in litt., 2005a; K. Kaneshiro pers. comm. 2006). Researchers estimate that between 90 and 95 percent of *D. neoclavisetae*'s total potential range has been surveyed (K. Kaneshiro, pers. comm., 2006).

The host plant of *Drosophila neoclavisetae* has not yet been confirmed, although it is likely associated with *Cyanea* sp. (family Campanulaceae). Because both collections of this species occurred within a small patch of *Cyanea* sp. and because many other species in the *D. adiastola* species group use species in this genus and other plants in the family Campanulaceae, researchers believe the *Cyanea* sp. found at Puu Kukui is likely the correct host plant for *D. neoclavisetae* (Science Panel 2005; Kaneshiro and Kaneshiro 1995). Due to its inaccessibility, some potential habitat surrounding the known range of *D. neoclavisetae* remains unsurveyed for the species (Science Panel 2005).

Drosophila obatai

Drosophila obatai was described by Hardy and Kaneshiro in 1972, from specimens collected in the Waianae Mountains of Oahu. *D. obatai* resembles *D. sodomae* from Maui and Molokai and is distinguished by small differences in wing markings and the black coloration of the abdomen.

Drosophila obatai is historically known from two localities between 1,500 and 2,200 ft (457 to 670 m) above sea level. Nine individuals were recorded during ten surveys between 1970 and 1991 (Kaneshiro, in litt., 2005a). Individuals of the species were detected in November 1971 at the time of the last survey at Wailupe Gulch. The second site (Puu Pane), has been surveyed eight times between 1970 and 1991, with the last detection occurring in March 1971 (Kaneshiro, in litt., 2005a).

Drosophila obatai larvae feed within decomposing portions of *Pleomele forbesii,* a candidate for Federal listing

(90 FR 24870), and *Pleomele aurea* (both in the family Agavaceae) (Kaneshiro and Kaneshiro 1995; Montgomery 1975). These host plants grow on slopes in dry forest and diverse mesic forest, and occur singly or in small clusters, rarely forming large stands (Wagner *et al.* 1999).

Drosophila ochrobasis

Drosophila ochrobasis was originally described by Hardy and Kaneshiro (1968) based on a specimen collected from Puu Hualalai on the island of Hawaii at an elevation of 5,550 ft (1,692 m) above sea level. Based on chromosomal studies, *D. ochrobasis* is a member of the *D. adiastola* group and appears to be most closely related to *D. setosimentum* (Kaneshiro *et al.* 1995).

Both the body and wings of *Drosophila ochrobasis* are approximately 0.18 in (4.6 mm) in length. The head is yellow in front and brown on top, and the face is white with a prominent ridge running down the middle. The thorax is yellow except for a large brown spot on each side. The legs are yellow tinged with brown. In males, the basal three-fifths of the wings are predominantly clear to translucent with faint transverse streaks of brown. The outer two-thirds of the wing is dark brown with large clear spots similar to that portion of the wings in *D. setosimentum.* The females of *D. ochrobasis* are virtually indistinguishable from *D. setosimentum* females (Kaneshiro and Kaneshiro 1995).

Historically, *Drosophila ochrobasis* was relatively widely distributed between 3,900 and 5,300 ft (1,189 to 1,615 m) above sea level. *D. ochrobasis* has been recorded from 10 localities on 4 of the island's 5 volcanoes (Hualalai, Mauna Kea, Mauna Loa, and the Kohala mountains).

Recorded almost every year from 1967 to 1975, sometimes in relatively large numbers (135 occurrences in the period between 1970 and 1974), *Drosophila ochrobasis* is now largely absent from its historical localities. A single individual of *D. ochrobasis* was last observed at the 1855 lava flow (Kipuka 9 and Kipuka 14) in 1986 (Kaneshiro and Kaneshiro 1995; K. Kaneshiro, in litt., 2005a). Several surveys between 1995 to 1997 failed to locate the species at many of its historical sites (K. Kaneshiro, in litt., 2005a).

The larvae of this species have been reported to use the decomposing portions of three different host plant groups—*Myrsine* sp. (family Myrsinaceae), *Clermontia* sp. (family Campanulaceae), and *Marattia* sp. (family Marattiaceae) (Montgomery 1975; Kaneshiro and Kaneshiro 1995).

Drosophila substenoptera

Hardy (1965) originally described this species as Idiomyia substenoptera. He later determined the genus *Idiomyia* to be synonymous with *Drosophila* (Hardy 1969), thus creating the current name of *Drosophila substenoptera.* This species is closely related to *D. planitibia* and its relatives (Kaneshiro *et al.* 1995), but is distinguished by its wing markings, narrow wing shape, and complexity of the male genitalia. *D. substenoptera* is predominantly yellow with two black stripes extending down the entire length of the top surface of the thorax. The legs are yellow and lack long hairs on the dorsal surfaces. Body length is 0.171 in (4.35 mm), and the wings are 0.2 to 0.21 in (5.0 to 5.3 mm) long (Kaneshiro and Kaneshiro 1995).

Drosophila substenoptera is historically known from seven localities in both the Koolau and Waianae Mountains at elevations between 1,300 and 3,900 ft (396 to 1,189 m) above sea level. *Drosophila substenoptera* is now only known to occur on the summit of Mt. Kaala. *Drosophila* researchers have devoted intensive efforts to relocating this species at other sites because the species is considered important for genetic studies of the *D. planitibia* phylogeny group; unfortunately, these efforts have failed to relocate this species at other sites (Kaneshiro and Kaneshiro 1995; Science Panel 2005).

Montgomery (1975) determined that *Drosophila substenoptera* larvae inhabit only the decomposing bark of *Cheirodendron* sp. trees (family Araliaceae) and *Tetraplasandra* sp. trees (family Araliaceae) in localized patches of wet forest habitat.

Drosophila tarphytrichia

Drosophila tarphytrichia was described by Hardy (1965) from specimens collected from Manoa Falls on Oahu in 1949. This species is closely related to *D. vesciseta* based on the structure of the male genitalia (Kaneshiro et al.1995), but can be differentiated by distinct wing markings and the ornamentation of the front legs of the male. The thorax is almost entirely yellow to red with a tinge of brown on the top. The legs are yellow, with the tip of the front leg strongly flattened laterally and with a dense clump of black hairs. This species is 0.148 in (3.70 mm) long with wings 0.2 in (4.0 mm) long (Kaneshiro and Kaneshiro 1995).

Drosophila tarphytrichia was historically known from both the Koolau and the Waianae Mountains between 2,000 and 2,800 ft (610 to 853 m) above sea level. A total of 31 individuals were recorded on 36 survey dates between 1965 and 1999 (Kaneshiro, in litt., 2005a). *Drosophila tarphytrichia* is now apparently extirpated from the Koolau range where it was originally discovered near Manoa Falls, and is presently known from four localities in the Waianae Mountains (Kaneshiro and Kaneshiro 1995; HBMP, in litt., 2005; K. Kaneshiro, in litt., 2005a).

The larvae of *Drosophila tarphytrichia* feed only within the decomposing portions of the stems and branches of *Charpentiera* sp. trees (family Amaranthaceae) in mesic forest habitat (Montgomery 1975).

Previous Federal Action

Ten of these 12 species were classified as candidates for listing in the February 28, 1996, Notice of Review of Plant and Animal Taxa That Are Candidates for Listing as Endangered or Threatened Species (Notice of Review) (61 FR 7596). The remaining two species, *Drosophila differens* and *D. ochrobasis,* were classified as candidates for listing in the Notice of Review dated September 19, 1997 (62 FR 49398). Candidates are those taxa for which the Service has on file substantial information on biological vulnerability and threats to support preparation of listing proposals.

On January 17, 2001, we published a proposed rule to list as endangered the 12 species of Hawaiian picture-wing flies (66 FR 3964), which included a detailed history of Federal actions completed prior to the publication of the proposal. At that time, we did not propose critical habitat for the 12 picture-wing flies. In the proposed rule and associated notifications, we requested that all interested parties submit comments, data, or other information that might contribute to the development of a final rule. A 60-day comment period on the January 17, 2001, proposal closed on March 19, 2001; we later reopened the comment period, as discussed below (see Summary of Comments and Recommendations section).

On February 28, 2005, the Center for Biological Diversity (CBD) filed a lawsuit in the District of Oregon alleging that the Service failed to take action following issuance of a proposed rule to list 12 species of picture-wing flies and for failure to designate critical habitat for the species (*Center for Biological Diversity* v. *Allen,* CV–05–274–HA). CBD and the Service subsequently agreed to settle the case. Pursuant to the settlement agreement approved by the

United States District Court for the District of Hawaii on August 31, 2005, the Service must make a final listing decision for these 12 Hawaiian picture-wing flies by May 1, 2006, and if prudent and determinable, propose critical habitat by September 15, 2006, and finalize critical habitat by April 17, 2007. However, the Service will propose critical habitat for 12 species of picture-wing flies within 60 days of the publication of this final rule.

Summary of Comments and Recommendations

In the proposed rule published on January 17, 2001 (66 FR 3964), we requested that all interested parties submit written comments on the proposal by March 19, 2001. We also contacted appropriate Federal and State agencies, scientific experts and organizations, and other interested parties and invited them to comment on the proposal. Newspaper notices inviting general public comment were published in the Honolulu Advertiser. No requests for a public hearing were received.

Because the proposed rule was published in 2001, and public outreach was conducted in 2001, we sought additional public comment on the proposed rule by reopening the public comment period from October 4 to November 3, 2005 (70 FR 57851). We again reopened the comment period from November 18 to December 2, 2005 (70 FR 69922). The reopened comment periods (and associated notifications in local media and via direct mailing) gave interested parties additional time to consider the information in the proposed rule and provide comments and new information.

During the comment periods for the proposed rule, we received nine written comments. Of those comments received, one commenter opposed the final listing, five commenters stated support for the final listing, one commenter expressed concern about unrestricted collecting of the flies, one commenter provided additional information regarding a fire management plan, and one commenter stated concerns about the potential impacts of the listing and critical habitat designation on private lands.

Peer Review

In 2005, in accordance with our peer review policy published on July 1, 1994 (59 FR 34270), we solicited opinions from researchers, land managers, and State officials. All 16 individuals solicited have expertise with the species and the geographic regions where the species occur, and are familiar with conservation biology principles. We received written comments from two experts and incorporated their information into this final rule. One of the peer reviewers has a doctorate degree based upon study and research concerning Hawaiian *Drosophila* biology, evolution, genetics, and ecology research. The other holds a doctorate in insect taxonomy and has studied Hawaiian picture-wing flies for the past 10 years while working as a research scientist for the U.S. Geological Survey.

One peer reviewer suggested the threats described in the proposed rule may not include all of the factors affecting the 12 flies, including factors causing their reduction in numbers. The reviewer noted that at least 3 of the 12 flies proposed for listing have demonstrated an apparent habitat shift upward in elevation, and suggested that global warming and increased temperatures on the Hawaiian Islands may be the cause. The reviewer suggested additional research was needed to validate the theory.

This same reviewer provided a synopsis, based partly on the reviewer's own 35 years of Hawaiian *Drosophila* research, surveys, and personal observations in the field and laboratory while employed as a researcher with the University of Hawaii, emphasizing three major threats to the Hawaiian picture-wing flies including predation by wasps (*Vespula* sp.), habitat destruction by feral ungulates, and the effects of global warming.

The other peer reviewer provided specific information about firsthand observations and evidence of declines in numbers and populations of three *Drosophila* species found on the island of Hawaii. This peer reviewer provided information and observational accounts of the effects of feral ungulates, rats, tipulid flies, and scolytid beetles upon picture-wing fly host plants and habitat and also the effects of predation by wasps (*Vespula* sp.) upon the 12 species. This peer reviewer also provided comments detailing the taxonomic differences recognized by *Drosophila* experts which establish the 12 flies as separate and distinct species.

Substantive information provided in all public comments, including the peer review process, either has been incorporated directly into this final rule or is addressed below.

Comment 1: The U.S. Army's Schofield Barracks Integrated Wildfire Management Plan significantly reduces the threats to *Drosophila aglaia* and *D. obatai* and therefore could reduce the imminent need to list these species.

Our Response: We agree that the Department of the Army's implementation of the completed Integrated Wildfire Management Plan will reduce the threat of fire caused by the Department of the Army to the habitat of these two picture-wing flies. However, the Integrated Wildfire Management Plan does not address the additional threats to these species' habitat within the Puu Pane area, including feral ungulates, nonnative weed plants, and predation by insect predators.

Comment 2: Several commenters were concerned that the listing, and especially the critical habitat designation for the flies, could impact native Hawaiian traditional and customary gathering rights and access, and could jeopardize cooperative conservation efforts.

Our Response: Private lands are likely to be important to the conservation of many of the picture-wing flies, and we appreciate all opportunities to work in partnerships with private landowners, the State, and others to further their conservation. The Act requires the listing of a species to be based solely on whether a species is affected by any of the five factors (see Summary of Factors section) to such an extent that they are in danger of becoming extinct (endangered status) or likely to become endangered (threatened status).

According to the court settlement related to this final listing, we are required to propose critical habitat if appropriate by September 15, 2006. The public will be invited to comment on any such proposal. Unlike when a species is listed, economic factors and conservation partnerships are considered in a critical habitat designation. Under the Act, the Secretary has the discretion to exclude areas from critical habitat designation if the benefits of exclusion outweigh the benefits of designation and such exclusion would not result in extinction of the species.

Comment 3: The proposed listing of the 12 picture-wing flies lacks stringent research, detailed surveys, and up-to-date population assessments, and the data were spotty, hearsay, incomprehensive, and not empirical.

Our Response: Since 1963, a mutli-disciplinary team of biologists have researched *Drosophila* through the University of Hawaii affiliated Hawaiian Drosophila Project. This effort has resulted in over 500 scientific papers being published and the taxonomic description of over 500 species of *Drosophila.* The information used to prepare this rule includes peer reviewed publications, unpublished literature, and written and verbal communications from research and field studies covering

a period of over 40 years of Hawaiian *Drosophila* research. In addition, this final rule includes information gathered after the proposed rule was published and a review of all available information on these species was made during science and managers review panels conducted in November 2005. While we acknowledge that additional systematic surveys for the picture-wing fly species and host plants would assist with understanding population trends and status, we believe we have ample information on habitat threats and trends in distribution for the picture-wing flies covered by this final rule.

Extinction Risk Assessment and Listing Decision Making Process

The Service convened a panel of three scientists from outside the Service with expertise in Hawaiian *Drosophila* to help synthesize and address uncertainties in the scientific information available for these 12 picture-wing flies, particularly threats to their existence (Science Panel 2005). A second panel made up of four Service managers and a State manager participated in related policy discussions and considered the available information including assessment of status, threats, and extinction risks. These two panels reviewed the available information and participated in a combined panel meeting in November 2005, prior to the close of the final comment period.

Science Panel

The purpose of the Science Panel was to assess threats for each of the 12 picture-wing flies, identify and resolve areas of scientific uncertainty, and discuss extinction risks in a carefully structured format. The panelists discussed taxonomy, adaptive radiation of picture-wing flies, hybridization, sexual selection, survey methods, *Drosophila* lifecycle, and species' distribution (Science Panel 2005). They then discussed specific threats to each of the flies. Following this information review, each expert was asked to rank independently the severity of each threat on a scale of 1 to 5 and explain why they assigned a given rank to a threat. Then the other scientists were given the opportunity to change their rankings based on the rationales presented. In this manner three ranks (one for each scientist) were assigned to each threat factor for each species (Science Panel 2005). The scientific panel discussed the strengths and weaknesses of the various data and hypotheses about threats to the flies. Results from these exercises revealed little disagreement among the scientists regarding the type and degree of threats faced by each species. Each scientist was separately asked, based on his/her threats assessment and experience, to categorize extinction risk for each species as high, medium, or low over the next 40 years. The results of this exercise are presented in Table 2.

TABLE 2.—SCIENCE PANEL CATEGORIZATION OF EXTINCTION RISK (H=HIGH, M=MEDIUM, L=LOW) OVER THE NEXT 40 YEARS FOR 12 HAWAIIAN PICTURE-WING FLIES

Species	Island	Extinction risk
Drosophila aglaia	Oahu	H H H
D. differens	Molokai	M H H
D. hemipeza	Oahu	M M M
D. heteroneura	Hawaii	H M M
D. montgomeryi	Oahu	H M H
D. mulli	Hawaii	M M M
D. musaphilia	Kauai	H H H
D. neoclavisetae	Maui	H H H
D. obatai	Oahu	H H H
D. ochrobasis	Hawaii	H H M
D. substenoptera	Oahu	H M M
D. tarphytrichia	Oahu	H H H

Manager Panel

The manager panel reviewed background materials, interacted with the science panel during their risk assessment exercise, and participated in general and specific discussions about the definition of threatened and endangered. Following these discussions, the managers were asked to give their separate opinions as to whether each of the 12 species of fly should be listed as endangered, listed as threatened, or withdrawn. The managers based their assessment on the information in the record, including comments previously received, the information presented by the individual mem bers of the science panel, information gaps and uncertainty, the number and severity of the threats affecting each species, and mitigating circumstances that might ameliorate one or more of those threats. Each manager was asked to explain their opinion and then the managers were given the opportunity to change their opinion based on the rationale presented by the other managers. The manager's panel presented its recommendations to the Regional Director. Subsequent to this, a recommendation of the Regional Director was forwarded to the Director for a final decision.

This rule is based on the record of these discussions and all relevant and available information pertaining to the threats and status of the species.

Summary of Factors Affecting the Species

Section 4 of the Act and its implementing regulations (50 CFR 424) set forth the procedures for adding species to the Federal list of endangered and threatened species. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1) of the Act. The five listing factors are: (1) The present or threatened destruction, modification, or curtailment of its habitat or range; (2) overutilization for commercial, recreational, scientific, or educational purposes; (3) disease or predation; (4) the inadequacy of existing regulatory mechanisms; and (5) other natural or manmade factors affecting its continued existence.

A. The Present or Threatened Destruction, Modification, or Curtailment of its Habitat or Range

Native vegetation on all the main Hawaiian Islands has undergone extreme alteration because of past and present land management practices, including ranching, introduction of nonnative plants and animals, and agricultural development (Cuddihy and Stone 1990). The primary threat facing

these picture-wing flies is the ongoing loss of habitat caused by feral animals and nonnative plants (Kaneshiro and Kaneshiro 1995).

Feral ungulates have devastated native vegetation in many areas of the Hawaiian Islands (Cuddihy and Stone 1990). Because the endemic Hawaiian flora evolved without the presence of browsing and grazing ungulates, many plant groups have lost their adaptive defenses such as spines, thorns, stinging hairs, and defensive chemicals (University of Hawaii Department of Geography 1998), and cattle (*Bos taurus*), goats (*Capra hircus*), pigs (*Sus scrofa*), sheep (*Ovis aries*), Mouflon sheep (*Ovis musimon*), axis deer (*Axis axis*), and mule deer (*Odocoileus hemionus*) readily eat these plants as well as disturbing the soil and distributing nonnative plant seeds that can alter the ecosystem. In addition to the damage these nonnative herbivores cause by browsing and grazing, goats, pigs, and other ungulates that inhabit steep and remote terrain cause severe erosion of whole watersheds due to their foraging and trampling behaviors (Cuddihy and Stone 1990).

Feral Pigs (*Sus scrofa*)

On the island of Hawaii, feral pigs are found from dry coastal grasslands through rain forests and into the sub-alpine zone of Mauna Kea and Mauna Loa. On Maui, Kauai, Oahu, and Molokai feral pigs inhabit rain forests, mesic forests, and grasslands (Cuddihy and Stone 1990). An increase in pig densities and expansion of their distribution has caused widespread damage to native vegetation (Cuddihy and Stone 1990). Feral pigs create open areas within forest habitat by digging up, eating, and trampling native species (Stone 1985). These open areas become fertile ground for non-native plant seeds spread through their excrement and by transport in their hair (Stone 1985). In nitrogen-poor soils, feral pig excrement increases nutrient availability, enhancing establishment of non-native weeds that are more adapted to richer soils than are native plants (Cuddihy and Stone 1990). In this manner, largely non-native forests replace native forest habitat (Cuddihy and Stone 1990).

Foote and Carson (1995) found that pig exclosures on the Big Island supported significantly higher relative frequencies of picture-wing flies compared to other native and nonnative *Drosophila* species (7 percent of all observations outside of the exclosure and 18 percent of all observations inside the exclosure) and their native host plants. Loope *et al.* (1991) showed that excluding pigs from a montane bog on northeastern Haleakala, Maui, resulted in an increase in native plant cover from 6 to 95 percent after 6 years of protection.

Goats (*Capra hircus*)

Goats native to the Middle East and India were first successfully introduced to the Hawaiian Islands in 1792. Feral goats now occupy a wide variety of habitats from lowland dry forests to montane grasslands on Kauai, Oahu, Molokai, Maui, and Hawaii, where they consume native vegetation, trample roots and seedlings, accelerate erosion, and promote the invasion of nonnative plants (van Riper and van Riper 1982; Stone 1985). On the island of Oahu, encroaching urbanization and hunting pressure have tended to concentrate the goat population in the dry upper slopes of the Waianae Mountains (Kaneshiro and Kaneshiro 1995). The population is increasing and spreading, becoming an even greater threat to the native habitat (Kapua Kawelo, U.S. Army, Environmental Division, pers. comm., 2005).

Cattle (*Bos taurus*)

Large-scale ranching of cattle on the Hawaiian Islands began in the middle of the 19th century on the islands of Kauai, Oahu, Maui, and Hawaii (Cuddihy and Stone 1990). Large ranches, tens of thousands of acres in size, were developed on East Maui and Hawaii (Cuddihy and Stone 1990) where most of the State's large ranches still exist. Degradation of native forests used for ranching activities became evident soon after full-scale ranching began. Feral cattle now occupy a wide variety of habitats from lowland dry forests to montane grasslands, where they consume native vegetation, trample roots and seedlings, accelerate erosion, and promote the invasion of nonnative plants (van Riper and van Riper 1982; Stone 1985). Cattle grazing continues in several lowland regions in the northern portion of the Waianae Mountains of Oahu, and within many areas on the island of Hawaii.

Rats (*Rattus spp.*)

Several species of nonnative rats, including the Polynesian rat (*Rattus exulans*), the roof rat (*Rattus rattus*), and the Norway rat (*Rattus norvegicus*), are present on the Hawaiian Islands and cause considerable environmental degradation (Staples and Cowie 2001). The seeds, bark, and flowers of several of the picture-wing flies' host plants, including *Clermontia* sp., *Pleomele* sp., and *Pritchardia beccariana*, are susceptible to grazing by all the rat species (Science Panel 2005; K. Magnacca, in litt., 2005; S. Montgomery, pers. comm., 2005b). The grazing by rats causes host plant mortality, diminished vigor, and seed predation, resulting in reduced host plant fecundity and viability (Science Panel 2005; K. Magnacca, in litt., 2005; S. Montgomery, pers. comm., 2005b).

Fire

Fire threatens species of Hawaiian picture-wing flies living in dry to mesic grassland, shrubland, and forests on both the islands of Hawaii and Oahu. A large factor in the alteration of Hawaiian dry and mesic regions in the past 200 years has been the increase in fire frequency, a condition to which the native flora is not adapted. The invasion of fire-adapted alien plants, especially *Melinis minutiflora* on Oahu and *Pennisetum setaceum* on Hawaii, facilitated by ungulate disturbance, has increased the susceptibility of native areas to wildfire and increased wildfire frequency. These plants can quickly reestablish following a fire and effectively outcompete less fire-adapted native plants. This change in fire regime has reduced the amount of forest cover for native species (Hughes *et al.* 1991; Blackmore and Vitousek 2000) and resulted in an intensification of feral ungulate herbivory in the remaining native forest areas. The impact of an altered wildfire regime to these areas is a serious and immediate threat to the viability of the dry and mesic habitats that support over one-third of Hawaii's threatened and endangered species as well as Hawaiian picture-wing flies and their host plants (Hughes *et al.* 1991; Kaneshiro and Kaneshiro 1995; Blackmore and Vitousek 2000). Furthermore, Hawaiian picture-wing fly habitat damaged or destroyed by fire is more likely to be invaded and re-vegetated by nonnative plants that cannot be used as host plants by picture-wing flies (Kaneshiro and Kaneshiro 1995).

Island of Oahu—*Drosophila aglaia*, *D. hemipeza*, *D. montgomeryi*, *D. obatai*, *D. substenoptera*, and *D. tarphytrichia*

The picture-wing flies on Oahu that are addressed in this rule (*Drosophila aglaia, D. hemipeza*, *D. montgomeryi*, *D. obatai*, *D. substenoptera*, and *D. tarphytrichia*) are threatened by the loss of habitat due to a variety of factors. Feral pigs and goats have dramatically altered the native vegetation (Kaneshiro and Kaneshiro 1995; Science Panel 2005). These feral ungulates destroy host plant seedlings and habitat by the trampling action of their hooves and through the spread of seeds of nonnative plants (Cuddihy and Stone 1995). Goats

directly feed upon the host plants of *D. aglaia*, *D. obatai*, and *D. substenoptera*, and contribute to erosion on some steeper slopes where the host plants occur; rats feed upon the host plants of *D. hemipeza* and *D. obatai*; pigs feed upon the host plants of *D. hemipeza*, *D. montgomeryi*, *D. obatai*, and *D. substenoptera*; and cattle feed upon the host plants of *D. obatai* and contribute to erosion on some steeper slopes where the host plants occur (S. Montgomery, pers. comm., 2005b).

The invasion of several nonnative plants, particularly *Psidium cattleianum*, *Lantana camara*, *Melinis minutiflora*, *Schinus terebinthifolius*, and *Clidemia hirta*, further contributes to the degradation of native forests and the host plants of picture-wing flies (Kaneshiro and Kaneshiro 1995; Wagner *et al.* 1999; Science Panel 2005). *Psidium cattleianum*, *Lantana camara*, *Melinis minutiflora*, and *Schinus terebinthifolius* form dense stands, thickets, or mats that shade or outcompete native plants. *M. minutiflora* is a grass that burns readily, often grows at the border of forests, and tends to carry fire into areas with woody native plants (Smith 1985; Cuddihy and Stone 1990). It is able to spread prolifically after a fire and effectively outcompete less fire-adapted native plant species, ultimately creating a stand of nonnative grass where forest once stood. *Lantana camera* produces chemicals that inhibit the growth of other plant species (Smith 1985; Wagner *et al.* 1999).

Drosophila aglaia and *D. obatai* occur at Puu Pane, located above the United States Army's Schofield Barracks Military Reservation. The gently sloping lands below Puu Pane are used as a live firing range, and ordnance-induced fires have been a common occurrence in this area (U.S. Army, in litt., 2005). The U.S. Army recently completed and is implementing an Integrated Wildfire Management Plan to reduce the risk and improve control of training-related fires in this area. As part of the Integrated Wildfire Management Plan, firebreak roads have been constructed around the perimeter of the live-fire training area. We believe that the Integrated Wildfire Management Plan will reduce the threat and magnitude of wildfires caused by the U.S. Army; however wildfires caused by the Army and other sources, and which may escape control, remain a potential threat to these species and their habitat located in gullies up-slope from the firing ranges (Kaneshiro and Kaneshiro 1995; U.S. Army, in litt., 2005).

In summary, the picture-wing flies on Oahu continue to experience a significant amount of habitat loss and degradation throughout their range. Furthermore, the host plant species for *D. aglaia*, *D. hemipeza*, *D. montgomeryi*, and *D. obatai* are rare or sparsely distributed and threatened by ongoing habitat degradation.

Island of Hawaii—*Drosophila heteroneura*, *D. mulli*, and *D. ochrobasis*

The picture-wing flies on the island of Hawaii addressed in this rule (*Drosophila heteroneura*, *D. mulli*, and *D. ochrobasis*) are threatened by the loss of habitat due to a variety of factors. Feral pigs and goats have dramatically altered the native vegetation (Kaneshiro and Kaneshiro 1995; D. Foote, pers. comm., 2005; Science Panel 2005). These feral ungulates destroy host plant seedlings and habitat by the trampling action of their hooves and through the spread of seeds of nonnative plants (Cuddihy and Stone 1995; D. Foote, pers. comm., 2005). Goats, pigs, and rats directly feed upon *D. heteroneura* and *D. ochrobasis* host plants. Cattle also feed on *D. ochrobasis* host plants. Rats directly feed upon the seeds produced by *D. mulli* host plants (K. Magnacca, in litt., 2005; S. Montgomery, pers. comm., 2005b), and feral cattle and goats contribute to erosion on some steeper slopes where *D. heteroneura* and *D. ochrobasis* host plants occur.

The Hawaiian Islands now support several species of nonnative beetles (family Scolytidae, genus *Coccotrypes*), a few of which bore into and feed on the nuts produced by certain native plant species including *Pritchardia beccariana*, the host plant of *Drosophila mulli*. Affected *Pritchardia* sp., including *P. beccariana*, drop their palm nuts before the nuts reach maturity due to the boring action of the scolytid beetles. Little natural regeneration of this host plant species has been observed in the wild since the arrival of this scolytid beetle (Science Panel 2005; K. Magnacca, in litt., 2005). Compared to the host plants of the other picture-wing flies, *P. beccariana* is long lived (up to 100 years), but over time scolytid beetles may have a significant impact on the availability of habitat for *D. mulli*.

Near the original discovery site for *D. mulli* in the State-owned Olaa Forest Reserve, fencing and pig and rat control has been implemented on Hawaii Volcanoes National Park lands, thereby providing some protection to the host plants and *D. mulli's* habitat there (K. Magnacca, pers. comm. 2006). Within the Upper Waikea Reserve site, fencing has recently been installed encompassing some of *D. mulli's* host plants, protecting them from feral ungulates (K. Magnacca, pers. comm. 2006).

The invasion of several nonnative plants, particularly *Psidium cattleianum*, *Rubus ellipticus*, *Passiflora mollissima*, and *Penniisetum setaceum*, contributes to the degradation of picture-wing host plant habitat on the island of Hawaii (Kaneshiro and Kaneshiro 1995; Wagner et al. 1999; Science Panel 2005). Jacobi and Warshauer (1992) reported that nonnative plants, including *Passiflora mollissima*, *Penniisetum setaceum*, and *Psidium cattleianum*, were found in 72 percent of 64 vegetation types sampled in a 5,000 km^2 (1,930 mi^2) study area on the island of Hawaii. *Psidium cattleianum* and *Rubus ellipticus* form dense stands that exclude other plant species (Cuddihy and Stone 1990; Wagner et al. 1999). *Passiflora mollissima* is a vine that causes damage or death to native trees by overloading branches, causing breakage, or by forming a dense canopy cover, intercepting sunlight and shading out native plants below (Wagner et al. 1999). *Penniisetum setaceum* has greatly increased fire risk in some regions, especially on the dry slopes of Hualalai, Kilauea, and Mauna Loa Volcanoes on the island of Hawaii (Wagner et al. 1999). This species quickly reestablishes itself after fires, unlike its native Hawaiian plant counterparts (Wagner et al. 1999).

In summary, picture-wing flies on the island of Hawaii addressed in this rule continue to experience a significant amount of habitat loss and degradation throughout their range. The threats to *D. mulli*, in light of the ongoing management efforts and the long-lived nature of its host plant, do not appear to be of sufficient magnitude to warrant a listing as endangered at this time; however, the current lack of host plant regeneration and other threats suggest that *D. mulli* is likely to become an endangered species within the foreseeable future.

Island of Molokai—*Drosophila differens*

Drosophila differens is threatened by the loss of habitat due to a variety of factors. The primary threats to this species' habitat are from feral pigs and the nonnative weed, *Psidium cattleianum*, in a manner similar to picture-wing fly habitat on Oahu and Hawaii (see above). In addition, axis deer are present on Molokai, and they continue to degrade native forest habitat by trampling and overgrazing vegetation, which removes ground cover and exposes the soil to erosion. Although goats were described as a threat to at least one population of *D.*

differens at Pu'u Kolekole in the proposed rule, we have subsequently learned that they may not be present in this area (K. Kaneshiro, pers. comm. 2006).

Island of Kauai—*Drosophila musaphilia*

Degradation and modification of *Drosophila musaphilia* habitat, particularly from the effects of feral ungulates and the nonnative weed *Psidium cattleianum*, have occurred and are likely to continue into the future (Kaneshiro and Kaneshiro 1995; Science Panel 2005). In addition to pigs and goats (see Oahu and Hawaii species for a discussion of the effects of these ungulates on picture-wing fly habitat), *D. musaphilia* habitat is threatened by black-tailed deer, which feed on a variety of alien and native plants, including the host plant, *Acacia koa* (van Riper and van Riper 1982).

The invasion of several nonnative plants, particularly *Psidium cattleianum*, *Lantana camara*, *Melinis minutiflora*, *Rubus argutus*, *Clidemia hirta*, and *Passiflora mollissima*, further contributes to the degradation of native forests and the host plants of *D. musaphilia* (Kaneshiro and Kaneshiro 1995; Wagner et al. 1999; Science Panel 2005). *Psidium cattleianum*, *Lantana camara*, *Melinis minutiflora*, and *Rubus argutus* form dense stands, thickets, or mats that shade or outcompete native plants. *Passiflora mollissima* is a vine that causes damage or death to native trees by overloading branches, causing breakage, or by forming a dense canopy cover, intercepting sunlight and shading out native plants below (Wagner et al. 1999). *Lantana camera* produces chemicals that inhibit the growth of other plant species (Smith 1985; Wagner et al. 1999).

Fire and the resultant invasion by alien species remains a significant threat to the mesic forests that *Drosophila musaphilia* inhabits on Kauai (Science Panel 2005). *M. minutiflora* is a grass that burns readily, often grows at the border of forests, and tends to carry fire into areas with woody native plants (Smith 1985; Cuddihy and Stone 1990). It is able to spread prolifically after a fire and effectively outcompete less fire-adapted native plant species, ultimately creating a stand of nonnative grass where forest once stood.

D. musaphilia is known to be inherently rare since the larvae feed within slime fluxes, which develop on *Acacia koa*. Yet, while threats from feral ungulates and nonnative weeds are affecting the regeneration of *Acacia koa*, the adult trees within this area remain relatively stable (Science Panel 2005).

Island of Maui— *Drosophila neoclavisetae*

Drosophila neoclavisetae is limited to the highlands of West Maui, where degradation and modification of its habitat, particularly from the effects of feral pigs, have occurred (Kaneshiro and Kaneshiro 1995; Science Panel 2005). Rats are also a significant factor threatening *D. neoclavisetae* habitat and are abundant in the areas where *D. neoclavisetae* has been observed (Science Panel 2005).

B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

Overutilization is not known to be a threat to any of the 12 picture-wing fly species addressed in this rule.

C. Disease or Predation

Commercial shipping and air cargo to Hawaii have resulted in the establishment of over 3,372 species of nonnative insects (Howarth 1990; Howarth *et al.* 1995; Staples and Cowie 2001), with an estimated continuing establishment rate of 20 to 30 new species per year (Beardsley 1962, 1979; Staples and Cowie 2001).

In addition to the accidental establishment of nonnative species, nonnative predators and parasites for biological control of pests have been purposefully imported and released in Hawaii since 1865. Between 1890 and 2004, 387 nonnative species were introduced, sometimes with the specific intent of reducing populations of native Hawaiian insects (Funasaki et al. 1988; Lai 1988; Staples and Cowie 2001). Nonnative arthropods pose a serious threat to Hawaii's native *Drosophila*, both through direct predation or parasitism as well as competition for food or space (Howarth and Medeiros 1989; Howarth and Ramsay 1991; Kaneshiro and Kaneshiro 1995; Staples and Cowie 2001).

Due to their large colony sizes and systematic foraging habits, species of social Hymenoptera (ants and some wasps) and parasitic wasps pose the greatest predation threat to the Hawaiian picture-wing flies (Carson 1982b; Gambino et al. 1987; Kaneshiro and Kaneshiro 1995). Several alien ant species have been implicated in the extinction or local loss of many native species, including much of the lowland Hawaiian insect fauna (Howarth and Medeiros 1989). According to Kaneshiro and Kaneshiro (1995), ''many of Hawaii's native species evolved in the absence of predators and thus do not have the adaptive traits to compete with these alien species. Therefore, when alien insects such as the yellow-jackets and various species of ants were introduced, many native insects including the Hawaiian *Drosophila* were decimated.''

Wasps

In 1977, an aggressive race of the western yellow-jacket wasp (*Vespula pennsylvanica*) became established in the State of Hawaii, and this species is now abundant between 1,969 and 3,445 ft (600 and 1,050 m) in elevation (Gambino et al. 1990). On Maui, Gambino et al. (1990) reported a gap in nest distribution between 4,429 and 6,890 ft (1,350 and 2,100 m) in elevation, with an increase in abundance above 7,546 ft (2,300 m). They attributed this distributional pattern to higher relative humidity and decreased insolation associated with a cloud layer that forms at middle elevations on Maui and appears to have an adverse effect on *Vespula* physiology.

Compared with typical North American populations, yellow-jackets in Hawaii display a high incidence of colonies that overwinter and persist into at least a second year. The result is that numbers of workers at such colonies are much greater than at annual colonies (Gambino et al. 1987). Yellow-jacket colonies in Hawaii can each produce over a half-million foragers that consume tens of millions of arthropods (Gambino and Loope 1992). In Haleakala National Park on Maui, yellow-jackets were found to forage predominantly on native arthropods (Gambino et al. 1987, 1990; Gambino and Loope 1992) and have been observed carrying and feeding upon recently captured adult Hawaiian *Drosophila* (Kaneshiro and Kaneshiro 1995). Picture-wing flies may be particularly vulnerable to predation by wasps due to their lekking behavior, conspicuous courtship displays that can last for several minutes, and relatively large size (K. Kaneshiro, pers. comm. 2006).

The disappearance of several of the 12 picture-wing flies in this rule from historical observation sites, including *Drosophila differens*, *D. neoclavisetae*, *D. heteroneura*, and *D. mulli*, may be due to a variety of factors, and there is no documentation that conclusively ties this decrease in observations with the establishment of yellow-jacket wasps within their habitats, although the concurrent arrival of wasps and decline of picture-wing fly observations in some areas suggest that the wasps may have played a significant role in the decline of some of the picture-wing fly populations (Carson 1982b, 1986; Foote

and Carson 1995; Kaneshiro and Kaneshiro 1999; Science Panel 2005).

The number of native parasitic Hymenoptera (parasitic wasps) in Hawaii is limited, and only species in the family Eucoiliidae are known to use Hawaiian picture-wing flies as hosts (Kaneshiro and Kaneshiro 1995). However, species of nonnative braconid wasps, including *Diaschasmimorpha tryoni*, *D. longicaudatus*, *Opius vandenboschi*, and *Biosteres arisanus*, were purposefully introduced into Hawaii to control several species of nonnative pest tephritid fruit flies (Funasaki et al. 1988). These parasitic wasps are also known to attack other species of flies, including native flies in the family Tephritidae. While these parasitic wasps have not been recorded parasitizing Hawaiian picture-wing flies, and may not successfully develop in Drosophilidae, females will sting any fly larva available in their attempts to oviposit (lay eggs) and can cause mortality (T. Duan, University of Hawaii, pers. comm., 1995).

Ants

Ants are not a natural component of Hawaii's arthropod fauna, and native species evolved in the absence of predation pressure from ants. Ants can be particularly destructive predators because of their high densities, recruitment behavior, aggressiveness, and broad range of diet (Reimer 1993). The threat to picture-wing flies is amplified by the fact that most ant species have winged reproductive adults (Borror et al. 1989) and can quickly establish new colonies in additional suitable habitats (Staples and Cowie 2001). These attributes allow some ants to destroy isolated prey populations (Nafus 1993a, 1993b).

At least 44 species of ants are known to be established on the Hawaiian Islands (Hawaiian Ecosystems at Risk Project (HEAR) database, 2005), and at least 4 particularly aggressive species have severely affected the native insect fauna (Zimmerman 1948; HEAR database, 2005). Numerous other ant species are recognized as threats to native invertebrates, and additional species become established regularly. While the larvae of most of the Hawaiian picture-wing flies feed deep in the substrate of their host plants, they emerge and pupate in the ground, where they are exposed to predation by ants. Newly emerging adults are particularly susceptible to predation, and adult picture-wing flies have been observed with ants attached to their legs (Kaneshiro and Kaneshiro 1995).

Big-headed ants (*Pheidole megacephala*)

With few exceptions, native insects, including many fly species, have been eliminated in Hawaiian habitats where the big-headed ant is present (Perkins 1913; Gagne 1979; Gillespie and Reimer 1993). Although it has only been observed attacking laboratory populations of fruit flies (Wong et al. 1984), big-headed ants are thought to be a threat to picture-wing flies on Oahu and Hawaii occurring in mesic areas (i.e., *D. aglaia*, *D. hemipeza*, *D. heteroneura*, *D. montgomeryi*, *D. obatai*, *D. ochrobasis*, and *D. tarphytrichia*).

Argentine ants (*Iridomyrmex humilis*)

The Argentine ant was discovered on the island of Oahu in 1940, and is now established on all the main Hawaiin Islands (Reimer et al. 1990). Unlike the big-headed ant, the Argentine ant is primarily confined to higher elevations (Reimer et al. 1990). This species has been demonstrated to reduce populations, or even eliminate native arthropods, at high elevations in Haleakala National Park on Maui (Cole et al. 1992). Also on Maui, Argentine ants are significant predators on pest fruit flies (Wong et al. 1984). Argentine ants do not disperse by flight. Instead colonies are moved about with soil and construction material; a colony was recently discovered on an isolated peak on the island of Oahu under a radio tower. While we are not aware of documented occurrences of predation by Argentine ants on picture-wing flies, they are considered to be a threat to native arthropods generally at higher elevations (Cole et al. 1992) and thus potentially to picture-wing flies (Science Panel 2005).

Long-legged ants (*Anoplolepis longipes*)

The long-legged ant appeared in Hawaii in 1952, and now occurs on Kauai, Oahu, Maui, and Hawaii (Reimer et al. 1990). Direct observations indicate that Hawaiian arthropods are susceptible to predation by this species. Gillespie and Reimer (1993), and Hardy (1979) documented the disappearance of most native insects from Kipahulu Stream on Maui after the area was invaded by the long-legged ant. Although only cursory observations exist, long-legged ants are thought to be a threat to picture-wing flies at the lower elevations of Oahu and Hawaii in mesic areas (i.e., *D. aglaia, D. hemipeza, D. heteroneura, D. montgomeryi, D. obatai, D. ochrobasis, and D. tarphytrichia*) (Science Panel 2005).

Fire ants (*Solenopsis* spp.)

At least two species of fire ants, *Solenopsis geminata* and *S. papuana*, are also significant threats to native invertebrates (Gillespie and Reimer 1993) and occur on all the main Hawaiian Islands (Reimer et al. 1990; Nishida 1997). *Solenopsis geminata* is known to be a significant predator on pest fruit flies in Hawaii (Wong and Wong 1988). *Solenopsis papuana* is the only abundant, aggressive ant that has invaded intact mesic forest above 2,000 ft (600 m), and it is expanding its range in Hawaii (Reimer 1993).

Based on the findings discussed above, nonnative predatory and parasitic insects are considered significant factors contributing to the reduction in range and abundance of the Hawaiian picture-wing flies and, in combination with habitat loss, are a threat to their continued existence (Science Panel 2005). Some of these nonnative species were intentionally introduced by the State of Hawaii's Department of Agriculture or other agricultural agencies (Funasaki et al. 1988), and importations and augmentations of lepidopteran parasitoids continue. Although the State of Hawaii requires new introductions be reviewed before release (Hawaii State Department of Agriculture, in litt., 1994), post-release biology and host range cannot be fully predicted from laboratory studies (Gonzalez and Gilstrap 1992; Roderick 1992), and the purposeful release or augmentation of any fly predator or parasitoid is a potential threat to the conservation of picture-wing flies (Kaneshiro and Kaneshiro 1995; Simberloff 1992).

Disease is not known to be a threat to any of the 12 picture-wing flies addressed in this rule.

D. The Inadequacy of Existing Regulatory Mechanisms

Currently, no Federal, State, or local laws, treaties, or regulations specifically apply to any of these 12 species of picture-wing flies. However, regulations limiting release of biological controls in Hawaii and the fact that numerous host plants are listed as threatened or endangered provide indirect mechanisms which afford the picture-wing flies some protection.

Release of Biological Controls

As discussed in the Disease and Predation section (above), regulatory mechanisms designed to prevent the establishment of nonnative insects are inadequate given that 3,372 species of nonnative insects have become established in Hawaii (Howarth 1990; Howarth *et al.* 1995; Staples and Cowie 2001), with an estimated continuing establishment rate of 20 to 30 new

species per year (Beardsley 1962, 1979; Staples and Cowie 2001).

Under Hawaii's Plant Quarantine Law (Hawaii Revised Statues Chapter 150A), the State of Hawaii requires that introductions of biological controls be reviewed by the Board of Agriculture before release. The U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) regulates the importation and release of biological controls through the Plant Protection Act of 2000 (7 U.S.C. 7701 et seq.). APHIS requires a risk analysis for each species proposed for release. In order for a species to be approved for releases, the risk analysis must ensure that introduced biological control agents are limited in host range and do not pose a threat to listed species or native plants, or crops. Nevertheless, some nonnative wasp species have been introduced by Federal and State agencies for biological control of pest flies to the possible detriment of picture-wing flies. Because the post-release biology and host range are difficult to predict from laboratory studies done prior to all releases (Gonzalez and Gilstrap 1992; Roderick 1992), the purposeful release or augmentation of any dipteran predator or parasitoid is a potential threat to all picture-wing flies (Kaneshiro and Kaneshiro 1995; Simberloff 1992).

Endangered Species Act Protections for Host Plants

Some of the host plants used by the 12 picture-wing flies in this rule are listed as threatened or endangered under the Act (e.g., *Urera kaalae*, the only known host plant for *Drosophila montgomeryi*, is endangered). Under Hawaii State law, Federal listing automatically invokes State listing (HRS § 195D–4(a)). Furthermore, critical habitat has also been designated for a number of these listed plants. As such, these plants and their habitats are afforded certain protections under sections 7 and 9 of the Act and under section 13–107–3 of the Hawaii Administrative Rules.

Under section 7, all Federal agencies must ensure, in consultation with the Service, that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat. This protection does not apply to activities conducted on non-Federal land that do not involve Federal permitting or funding. *Drosophila aglaia, D. obatai*, and *D. heteroneura* are the only 3 flies addressed in this rule that have been recorded on federally-owned land. *D. aglaia* and *D. obatai's* host plants are not listed as threatened or endangered, and *D. heteroneura* is currently known from only two locations, one on Federal land and one on private land.

Under section 9, endangered plants cannot be removed, reduced to possession, or maliciously damaged or destroyed from areas under Federal jurisdiction. Endangered plants outside of Federal jurisdiction cannot be cut, dug up, damaged, or destroyed in knowing violation of any State law or regulation. Because all federally-listed species automatically become State-listed species, listed plants on non-Federal land are protected under section 9 of the Act. They are also protected under section 13–107–3 of the Hawaii Administrative Rules which prohibits the take (i.e. cut, collect, uproot, destroy, injure, possess) and sale of native endangered or threatened plants on all lands in the State of Hawaii. However, these regulations are difficult to enforce because of limited funding and personnel.

E. Other Natural or Manmade Factors Affecting Their Continued Existence

The Hawaiian Islands now support several established species of nonnative tipulid flies, and the larvae of a few of these feed within the decomposing bark of some host plants of the picture-wing flies, including *Charpentiera*, *Cheirodendron*, *Clermontia*, and *Pleomele* sp. (Science Panel 2005; K. Magnacca, in litt., 2005; S. Montgomery, pers. comm., 2005a). All of the picture-wing flies addressed in this rule, except for *D. mulli* and *D. musaphilia*, face larval-stage competition from nonnative tipulid flies. These tipulid larvae feed within the same portion of the decomposing host plant area normally occupied by the picture-wing fly larvae. The effect of this competition is a reduction in available host plant material for picture-wing fly larvae (Science Panel 2005). In laboratory studies, Grimaldi and Jaenike (1984) demonstrated that competition between *Drosophila* larvae and other fly larvae can exhaust food resources, which affects both the probability of larval survival and the body size of adults, resulting in reduced adult fitness, fecundity, and lifespan.

Hawaiian picture-wing flies evolved in isolated habitats, resulting in tremendous speciation (Williamson 1981); as a result, small population size may be less of a threat component than small habitat size (Science Panel 2005). Many of these picture-wing flies are now reduced to just a few populations within localized patches of their host plants, compounding the effects of numerous other factors causing their decline. The destruction of native plants and host plants within their habitat exacerbates the opening of niches for additional, introduced nonnative plant species. Once nonnative species are established, it is difficult for native plants, including host plants, to recover (Kaneshiro and Kaneshiro 1995; Science Panel 2005).

Conclusion

Island of Oahu—*Drosophila aglaia, D. hemipeza*, *D. montgomeryi*, *D. obatai*, *D. substenoptera*, and *D. tarphytrichia*

The major threats to *Drosophila aglaia*, *D. hemipeza*, *D. montgomeryi*, *D. obatai*, *D. substenoptera*, and *D. tarphytrichia* include current and future degradation and modification to the limited remaining habitat from feral ungulates, such as pigs; nonnative plants, particularly *Psidium Cattleianum* and *Clidemia hirta*; and fire (Cuddihy and Stone 1995; Kaneshiro and Kaneshiro 1995; Science Panel 2005). The picture-wing flies on Oahu continue to experience a significant amount of habitat loss and degradation throughout their range. Furthermore, the host plant species for D. aglaia, D. hemipeza, *D. montgomeryi*, and *D. obatai* are rare or sparsely distributed and threatened by ongoing habitat degradation.

Additionally, *D. aglaia*, *D. hemipeza*, *D. montgomeryi*, *D. obatai*, *D. substenoptera*, and *D. tarphytrichia* face competition at the larval stage from nonnative tipulid flies, and all stages face substantial predation pressure from nonnative insects such as ants and yellow-jacket wasps (Science Panel 2005; Kaneshiro and Kaneshiro 1995). Currently, existing regulations offer inadequate protection to these species.

Because of the significance of the threats, we conclude that all of the Oahu picture-wing flies addressed in this rule are in danger of extinction throughout their range. Therefore, *D. aglaia*, *D. hemipeza*, *D. montgomeryi*, *D. obatai*, *D. substenoptera*, and *D. tarphytrichia* meet the Act's definition of endangered and warrant protection as endangered under the Act.

Island of Hawaii—*Drosophila heteroneura*, *D. mulli*, and *D. ochrobasis*

Drosophila heteroneura and *D. ochrobasis* were historically widely distributed across Hawaii, known from 24 sites and 10 sites, respectively. However, these species have not been recently observed at many of these sites and may now be limited to two sites and one site, respectively (Kaneshiro and Kaneshiro 1995; K. Kaneshiro, in litt., 2005a; Science Panel 2005). *D. mulli*

was historically known from two sites, both of which were still occupied as of the last survey.

The major threats to *Drosophila heteroneura* and *D. ochrobasis* include current and future degradation and modification to their limited remaining habitat from feral ungulates, such as pigs; non-native plants, particularly *Psidium cattleianum* and *Pennisetum setaceum*; and fire (Cuddihy and Stone 1995; Kaneshiro and Kaneshiro 1995; Science Panel 2005). Feral pigs and goats have dramatically altered the native vegetation (Kaneshiro and Kaneshiro 1995; D. Foote, pers. comm., 2005; Science Panel 2005). These feral ungulates destroy host plant seedlings and habitat by the trampling action of their hooves and through the spread of seeds of nonnative plants (Cuddihy and Stone 1995; D. Foote, pers. comm., 2005). Goats, pigs, and rats directly feed upon *D. heteroneura* and *D. ochrobasis* host plants. Cattle also feed on D. ochrobasis host plants. Rats directly feed upon the seeds produced by *D. mulli* host plants (K. Magnacca, in litt., 2005; S. Montgomery, pers. comm., 2005b), and feral cattle and goats contribute to erosion on some steeper slopes where *D. heteroneura* and *D. ochrobasis* host plants occur.

The Hawaiian Islands now support several species of nonnative beetles (family Scolytidae, genus *Coccotrypes*), a few of which bore into and feed on the nuts produced by certain native plant species including *Pritchardia beccariana*, the host plant of *Drosophila mulli*. Affected *Pritchardia* sp., including *P. beccariana*, drop their palm nuts before the nuts reach maturity due to the boring action of the scolytid beetles. Little natural regeneration of this host plant species has been observed in the wild since the arrival of this scolytid beetle (Science Panel 2005; K. Magnacca, in litt., 2005). Compared to the host plants of the other picture-wing flies, *P. beccariana* is long lived (up to 100 years), but over time scolytid beetles may have a significant impact on the availability of habitat for *D. mulli*.

The invasion of several nonnative plants, particularly *Psidium cattleianum*, *Rubus ellipticus*, *Passiflora mollissima*, and *Pennisetum setaceum*, contributes to the degradation of picture-wing host plant habitat on the island of Hawaii (Kaneshiro and Kaneshiro 1995; Wagner *et al.* 1999; Science Panel 2005). Jacobi and Warshauer (1992) reported that nonnative plants, including *Passiflora mollissima*, *Pennisetum setaceum*, and *Psidium cattleianum*, were found in 72 percent of 64 vegetation types sampled in a 5,000 km^2 (1,930 mi^2) study area on the island of Hawaii. Psidium *cattleianum* and *Rubus ellipticus* form dense stands that exclude other plant species (Cuddihy and Stone 1990; Wagner *et al.* 1999). *Passiflora mollissima* is a vine that causes damage or death to native trees by overloading branches, causing breakage, or by forming a dense canopy cover, intercepting sunlight and shading out native plants below (Wagner *et al.* 1999). *Pennisetum setaceum* has greatly increased fire risk in some regions, especially on the dry slopes of Hualalai, Kilauea, and Mauna Loa Volcanoes on the island of Hawaii (Wagner *et al.* 1999). This species quickly reestablishes itself after fires, unlike its native Hawaiian plant counterparts (Wagner *et al.* 1999).

Additionally, these species face competition at the larval stage from nonnative tipulid flies within the host plant, and all stages face substantial predation pressure from nonnative insects such as long-legged ants and yellow-jacket wasps (Kaneshiro and Kaneshiro 1995; Science Panel 2005). Currently, existing regulations offer inadequate protection to these species.

Because of the significance of the threats, we conclude that *Drosophila heteroneura* and *D. ochrobasis* are in danger of extinction throughout their range. Therefore, these species meet the Act's definition of endangered and warrant protection as endangered under the Act.

Drosophila mulli faces similar threats but its host plant is long-lived, and management efforts in Volcanoes National Park (in forest adjacent to a known *D. mulli* site) are being undertaken to reduce the severity of those threats to its host plant. As a result of these actions, some regeneration of the host plant has been observed (K. Magnacca, pers. comm., 2006). Within the second site, the Upper Waikea Reserve area, pig fencing is expected to reduce the effects of browsing pigs upon the host plant population (K. Magnacca, pers. comm., 2006). Because of ongoing management efforts benefiting *D. mulli*, and because its host plant can live for 100 years, we conclude that *D. mulli* is not immediately at risk of extinction. However, given the threats to the species and to the persistence of the host plant, as described above, we find that this species is likely to become endangered in the foreseeable future, and thus meets the Act's definition of a threatened species.

Island of Molokai—*Drosophila differens*

Drosophila differens is historically known from only three sites. It is threatened by pigs, axis deer, rats, nonnative plants, tipulid competition, and yellow-jacket predation. The primary threats to this species' habitat are from feral pigs and the nonnative weed, *Psidium cattleianum*, in a manner similar to picture-wing fly habitat on Oahu and Hawaii (see above). In addition, axis deer are present on Molokai, and they continue to degrade native forest habitat by trampling and overgrazing vegetation, which removes ground cover and exposes the soil to erosion. Although goats were described as a threat to at least one population of *D. differens* at Pu'u Kolekole in the proposed rule, we have subsequently learned that they may not be present in this area (K. Kaneshiro, pers. comm. 2006). Nonnative predatory and parasitic insects are considered significant factors contributing to the reduction in range and abundance of the Hawaiian picture-wing flies and, in combination with habitat loss, are threats to their continued existence (Science Panel 2005).

These threats, considered in the context of the small number of individuals of the species (as inferred from the lack of positive survey results, despite extensive, focused efforts to relocate this species), are magnified and place *D. differens* in danger of extinction. Therefore, *D. differens* meets the Act's definition of endangered and warrants protection as endangered under the Act.

Island of Kauai—*Drosophila musaphilia*

Drosophila musaphilia is historically known from only four sites, but has only been observed once since 1972, in 1988 at the Pihea Trail. It is threatened by pigs, goats, black-tailed deer, nonnative plants, nonnative ants, yellow-jacket predation, and wildfire. Degradation and modification of *Drosophila musaphilia* habitat, particularly from the effects of feral ungulates and the nonnative weed *Psidium cattleianum*, have occurred and are likely to continue into the future (Kaneshiro and Kaneshiro 1995; Science Panel 2005). In addition to pigs and goats (see Oahu and Hawaii species for a discussion of the effects of these ungulates on picture-wing fly habitat), *D. musaphilia* habitat is threatened by black-tailed deer, which feed on a variety of alien and native plants, including the host plant, *Acacia koa* (van Riper and van Riper 1982).

The invasion of several nonnative plants, particularly *Psidium*

cattleianum, *Lantana camara*, *Melinis minutiflora*, *Rubus argutus*, *Clidemia hirta*, and *Passiflora mollissima*, further contributes to the degradation of native forests and the host plants of *D. musaphilia* (Kaneshiro and Kaneshiro 1995; Wagner et al. 1999; Science Panel 2005). *Psidium cattleianum*, *Lantana camara*, *Melinis minutiflora*, and *Rubus argutus* form dense stands, thickets, or mats that shade or outcompete native plants. *Passiflora mollissima* is a vine that causes damage or death to native trees by overloading branches, causing breakage, or by forming a dense canopy cover, intercepting sunlight and shading out native plants below (Wagner et al. 1999). *Lantana camera* produces chemicals that inhibit the growth of other plant species (Smith 1985; Wagner et al. 1999).

Fire and the resultant invasion by alien species remains a significant threat to the mesic forests that *Drosophila musaphilia* inhabits on Kauai (Science Panel 2005). *M. minutiflora* is a grass that burns readily, often grows at the border of forests, and tends to carry fire into areas with woody native plants (Smith 1985; Cuddihy and Stone 1990). It is able to spread prolifically after a fire and effectively outcompete less fire-adapted native plant species, ultimately creating a stand of nonnative grass where forest once stood.

D. musaphilia is known to be inherently rare since the larvae feed within slime fluxes, which develop on *Acacia koa*. Yet, while threats from feral ungulates and nonnative weeds are affecting the regeneration of *Acacia koa*, the adult trees within this area remain relatively stable (Science Panel 2005).

These threats, considered in the context of the small number of individuals of the species (as inferred from the lack of positive survey results, despite substantial survey effort within potential habitat for the species), are magnified and place *D. musaphilia* in danger of extinction. Nonnative predatory and parasitic insects are considered significant factors contributing to the reduction in range and abundance of the Hawaiian picture-wing flies and, in combination with habitat loss, are a threat to their continued existence (Science Panel 2005). Therefore, *D. musaphilia* meets the Act's definition of endangered and warrants protection as endangered under the Act.

Island of Maui—*Drosophila neoclavisetae*

Drosophila neoclavisetae has only been observed twice in one area of west Maui. It is threatened by pigs, nonnative plants, tipulid competition, and yellow-jacket predation. *Drosophila neoclavisetae* is limited to the highlands of West Maui, where degradation and modification of its habitat, particularly from the effects of feral pigs, have occurred (Kaneshiro and Kaneshiro 1995; Science Panel 2005). Rats are also a significant factor threatening *D. neoclavisetae* habitat and are abundant in the areas where *D. neoclavisetae* has been observed (Science Panel 2005). Nonnative predatory and parasitic insects are considered significant factors contributing to the reduction in range and abundance of the Hawaiian picture-wing flies and, in combination with habitat loss, are a threat to their continued existence (Science Panel 2005). These threats, considered in the context of the small number of individuals of the species (as inferred from the lack of positive survey results, despite extensive, focused efforts to relocate this species), are magnified and place *D. neoclavisetae* in danger of extinction. Therefore, *D. neoclavisetae* meets the Act's definition of endangered and warrants protection as endangered under the Act.

Summary

The Service has assessed the best scientific and commercial information available regarding the past, present, and future threats faced by the 12 picture-wing fly species in determining this final rule. Based on this evaluation, this *final rule* notice lists *Drosophila aglaia*, *D. differens*, *D. hemipeza*, *D. heteroneura*, *D. montgomeryi*, *D. musaphilia*, *D. neoclavisetae*, *D. obatai*, *D. ochrobasis*, *D. substenoptera*, and *D. tarphytrichia* as endangered and lists *D. mulli* as threatened. These species are endangered or threatened by one or more of the following: Habitat degradation by pigs, goats, deer, rats, cattle, nonnative insects, and nonnative plants, all of which reduce the quality of habitat; direct host plant loss and host plant habitat loss from fire; direct predation by ants and nonnative wasps; and competition with nonnative insects.

Critical Habitat

Critical habitat is defined in section 3 of the Act as: (i) The specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (I) essential to the conservation of the species, and (II) that may require special management considerations or protection, and (ii) specific areas outside the geographical area occupied by a species at the time it is listed in accordance with the provisions of section 4 of the Act, upon a determination by the Secretary that such areas are essential for the conservation of the species. ''Conservation'' means the use of all methods and procedures needed to bring the species to the point at which protection under the Act is no longer necessary.

Pursuant to a settlement agreement approved by the United States District Court for the District of Hawaii on August 31, 2005 (*CBD* v. *Allen*, CV–05–274–HA), the Service must submit, for publication to the **Federal Register**, a prudency determination for designating critical habitat for the 12 species of picture-wing flies, pursuant to the Act's sections 4(b)(6)(A) and (C), concurrent with the final listing on or by April 17, 2006. The settlement further stipulates that if the final listing determination results in the listing of one or more of the 12 species and a critical habitat designation is found to be prudent, the Service must submit, for publication in the **Federal Register**, a proposed critical habitat designation for the listed species for which critical habitat is prudent on or by September 15, 2006, and a final critical habitat determination by April 17, 2007. However, the Service will propose critical habitat for 12 species of picture-wing flies within 60 days of the publication of this final rule.

Section 4(a)(3) of the Act, as amended, and implementing regulations (50 CFR 424.12) require that, to the maximum extent prudent and determinable, the Secretary designate critical habitat at the time the species is determined to be endangered or threatened. Our regulations (50 CFR 424.12(a)(1)) state that designation of critical habitat is not prudent when one or both of the following situations exist—(1) The species is threatened by taking or other activity and the identification of critical habitat can be expected to increase the degree of threat to the species, or (2) such designation of critical habitat would not be beneficial to the species.

Identification of critical habitat will not increase the degree of threats to the species because they are not threatened by overcollection or malicious destruction of habitat. Furthermore, designation may be beneficial through the protections afforded critical habitat areas under section 7 of the Act. Therefore, we believe that designation of critical habitat is prudent for those flies being listed in this final rule.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Act include recognition, recovery actions, requirements for Federal protection, and

prohibitions against certain activities. Recognition through listing results in public awareness and encourages conservation actions by Federal, State, Tribal, and local agencies; non-governmental conservation organizations; and private individuals. The Act provides for possible land acquisition and cooperation with States and requires that recovery actions be carried out for listed species. Recovery planning and implementation, the protection required by Federal agencies, and the prohibitions against certain activities involving listed animals are discussed, in part, below.

The primary purpose of the Act is the conservation of endangered and threatened species and the ecosystems upon which they depend. The ultimate goal of such conservation efforts is the recovery of these listed species, so that they no longer need the protective measures of the Act. Subsection 4(f) of the Act requires the Service to develop and implement plans for the conservation of endangered and threatened species (''recovery plans''). The recovery process involves halting or reversing the species' decline by addressing the threats to its survival. The goal of this process is to restore listed species to a point where they are secure, self-sustaining, and functioning components of their ecosystems, thus allowing delisting.

Recovery planning includes the development of a recovery outline shortly after a species is listed, then preparation of draft and final recovery plans, and finally revision of the plan as significant new information becomes available. The recovery outline, the first step in recovery planning, guides the immediate implementation of urgent recovery actions and describes the process to be used to develop a recovery plan. The recovery plan identifies site-specific management actions that will achieve recovery of the species, measurable criteria that determine when a species may be downlisted or delisted, and methods for monitoring recovery progress. Recovery teams, consisting of species experts, Federal and State agencies, non-government organizations, and stakeholders, are often established to develop recovery plans. When completed, a copy of the recovery outline, draft recovery plan, or final recovery plan will be available from our Web site (*http://endangered.fws.gov*), or if unavailable or inaccessible, from our office (see **FOR FURTHER INFORMATION CONTACT** section).

Implementation of recovery actions generally requires the participation of a broad range of partners, including other Federal agencies, States, non-governmental organizations, businesses, and private landowners. Examples of recovery actions include habitat restoration (e.g., restoration of vegetation), research, captive propagation and reintroduction, and outreach and education. The recovery of many listed species cannot be accomplished solely on Federal lands. To achieve recovery of these species requires cooperative conservation efforts on private lands as many occur primarily or solely on private lands.

The funding for recovery actions can come from a variety of sources, including Federal budgets, State programs, and cost share grants for non-Federal landowners, the academic community, and non-governmental organizations. In addition, pursuant to section 6 of the Act, we would be able to grant funds to the State of Hawaii for management actions that promote the protection and recovery of the 12 Hawaiian picture-wing flies. Information on our grant programs that are available to aid species recovery can be found at: *http://endangered.fws.gov/grants/index.html.* In the event that our Internet connection is inaccessible, please check *http://www.grants.gov* or check with our grant programs contact at U.S. Fish and Wildlife Service, Ecological Services, 911 NE. 11th Avenue, Portland, OR 97232–4181 (telephone 503/231–6154; facsimile 503/231–6846).

Please let us know if you are interested in participating in recovery efforts for the 12 species of Hawaiian picture-wing flies. Additionally, we invite you to submit any further information on the species whenever it becomes available and any information you may have for recovery planning purposes (see **FOR FURTHER INFORMATION CONTACT** section).

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened, and with respect to its critical habitat if any is being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(2) requires Federal agencies, including the Service, to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of a listed species or to destroy or adversely modify its critical habitat if any has been designated. If a Federal action may adversely affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with us.

Federal agency actions that may require consultation for the 12 picture-wing flies include, but are not limited to, actions within the jurisdiction of the U.S. Army Corps of Engineers, Federal Emergency Management Agency, Federal Highways Administration, Natural Resources Conservation Service, National Park Service, Fish and Wildlife Service, and branches of the Department of Defense (DOD). Activities will trigger consultation under section 7 if they may affect the picture-wing flies addressed in this rule. Federally supported activities that could affect the picture-wing flies or their habitat in the future include, but are not limited to: Bombardment and live-fire exercises; troop movements; agricultural projects; and construction or improvement of roads, airports, firebreaks, radio towers, and housing and other buildings.

The Act and its implementing regulations set forth a series of general prohibitions and exceptions that apply to all endangered and threatened wildlife. The prohibitions of section 9(a)(2) of the Act, implemented by 50 CFR 17.21 and 17.31 for endangered and threatened species, make it illegal for any person subject to the jurisdiction of the United States to take (includes harass, harm, pursue, hunt, shoot, wound, kill, trap, or collect; or attempt any of these), import or export, ship in interstate commerce in the course of a commercial activity, or sell or offer for sale in interstate or foreign commerce any listed species. It is also illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken illegally. Further, it is illegal for any person to attempt to commit, to solicit another person to commit, or to cause to be committed, any of these acts. Certain exceptions apply to our agents and State conservation agencies.

Permits may be issued to carry out otherwise prohibited activities involving threatened and endangered species under certain circumstances. Regulations governing permits are codified at 50 CFR 17.22 and 17.32. Such permits are available for scientific purposes, to enhance the propagation or survival of the species, and/or for incidental take in connection with otherwise lawful activities. For threatened species, permits are also available for zoological exhibition, educational purposes, or special purposes consistent with the purposes of the Act. Requests for copies of the regulations regarding listed wildlife and inquiries about permits and prohibitions may be addressed to U.S. Fish and Wildlife Service, Endangered Species Permits, 911 NE. 11th Avenue, Portland, OR 97232–4181.

It is our policy, published in the **Federal Register** on July 1, 1994 (59 FR 34272), to identify to the maximum extent practicable at the time a species is listed, those activities that would or would not constitute a violation of section 9 of the Act. The intent of this policy is to increase public awareness of the effect of this listing on proposed and ongoing activities within the range of the species. We believe, based on the best available information that most scientific or recreational activities that do not damage habitat within native forest areas that support the 12 Hawaiian picture-wings would not likely result in violations of section 9.

We believe the following activities could potentially result in a violation of section 9, but possible violations are not limited to these actions alone:

(1) Unauthorized collecting, handling, possessing, selling, delivering, carrying, or transporting of the species, including import or export across State lines and international boundaries;

(2) Introduction of exotic species that compete with or prey upon the flies, such as the introduction of parasitic flies or predatory wasps to the State of Hawaii;

(3) Activities that disturb adult or larval fly feeding areas; and

(4) Unauthorized destruction or alteration of forested areas that are required by the flies for foraging or breeding.

Questions regarding whether specific activities would constitute a violation of section 9 should be sent to the Pacific Islands Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT** section). Requests for copies of the regulations concerning listed animals and general inquiries regarding prohibitions and permits may be addressed to the U.S. Fish and Wildlife Service, Endangered Species Permits, 911 NE. 11th Avenue, Portland, OR 97232–4181 (telephone 503/231–2063; facsimile 503/231–6243).

For the 12 Hawaiian picture-wing flies listed under the Act, the State of Hawaii Endangered Species Act (HRS, Sect. 195D–4(a)) is automatically invoked, prohibiting take and encouraging conservation by State government agencies. Further, the State may enter into agreements with Federal agencies to administer and manage any area required for the conservation, management, enhancement, or protection of endangered species (HRS, Sect. 195D–5(c)). Funds for these activities could be made available under section 6 of the Act (State Cooperative Agreements). Thus, the Federal protection afforded to these species by listing them as endangered and threatened species will be reinforced and supplemented by protection under State law.

National Environmental Policy Act

We have determined that environmental assessments and environmental impact statements, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244).

Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.)

This rule does not contain any new collections of information that require approval by OMB under the Paperwork Reduction Act. This rule will not impose recordkeeping or reporting requirements on State or local governments, individuals, businesses, or organizations. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

References Cited

A complete list of all references cited herein is available upon request from our Pacific Islands Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT** section).

Author

The primary author of this document is Michael Richardson, Pacific Islands Fish and Wildlife Office (see **ADDRESSES** section).

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation.

Regulation Promulgation

■ Accordingly, part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, is amended as set forth below:

PART 17—[AMENDED]

■ 1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361–1407; 16 U.S.C. 1531–1544; 16 U.S.C. 4201–4245; Pub. L. 99–625, 100 Stat. 3500; unless otherwise noted.

■ 2. Amend § 17.11(h) by adding the following, in alphabetical order under Insects, to the List of Endangered and Threatened Wildlife to read as follows:

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
*	*	*	*	*	*	*	
INSECTS							
*	*	*	*	*	*	*	
Fly, Hawaiian picture-wing.	*Drosophila aglaia*	U.S.A. (HI)	NA	E	756	NA	NA
Fly, Hawaiian picture-wing.	*Drosophila differens* ..	U.S.A. (HI)	NA	E	756	NA	NA
Fly, Hawaiian picture-wing.	*Drosophila hemipeza*	U.S.A. (HI)	NA	E	756	NA	NA
Fly, Hawaiian picture-wing.	*Drosophila heteroneura*.	U.S.A. (HI)	NA	E	756	NA	NA
Fly, Hawaiian picture-wing.	*Drosophila montgomeryi*.	U.S.A. (HI)	NA	E	756	NA	NA

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
Fly, Hawaiian picture-wing.	*Drosophila mulli*	U.S.A. (HI)	NA	T	756	NA	NA
Fly, Hawaiian picture-wing.	*Drosophila musaphilia*	U.S.A. (HI)	NA	E	756	NA	NA
Fly, Hawaiian picture-wing.	*Drosophila neoclavisetae.*	U.S.A. (HI)	NA	E	756	NA	NA
Fly, Hawaiian picture-wing.	*Drosophila obatai*	U.S.A. (HI)	NA	E	756	NA	NA
Fly, Hawaiian picture-wing.	*Drosophila ochrobasis.*	U.S.A. (HI)	NA	E	756	NA	NA
Fly, Hawaiian picture-wing.	*Drosophila substenoptera.*	U.S.A. (HI)	NA	E	756	NA	NA
Fly, Hawaiian picture-wing.	*Drosophila tarphytrichia.*	U.S.A. (HI)	NA	E	756	NA	NA
*	*	*	*	*	*	*	

Dated: May 2, 2006.

H. Dale Hall,

Director, Fish and Wildlife Service.

[FR Doc. 06–4299 Filed 5–8–06; 8:45 am]

BILLING CODE 4310–55–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 223

[Docket No. 050304058–6116–03; I.D. No. 060204C]

RIN No. 0648–XB29

Endangered and Threatened Species: Final Listing Determinations for Elkhorn Coral and Staghorn Coral

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Final rule.

SUMMARY: We, the National Marine Fisheries Service (NMFS), are publishing this final rule to implement our determination to list elkhorn (*Acropora palmata*) and staghorn (*A. cervicornis*) corals as threatened species under the Endangered Species Act (ESA) of 1973, as amended. We have reviewed the status of the species and efforts being made to protect the species, and we have made our determinations based on the best scientific and commercial data available. We also solicit information that may be relevant to our analysis of protective regulations and to the designation of critical habitat for these two species.

DATES: The effective date of this rule is June 8, 2006. Responses to the request for information regarding a subsequent ESA section 4(d) Rule and critical habitat designation must be received by June 2, 2006.

ADDRESSES: NMFS, Southeast Regional Office, Protected Resources Division, 263 13th Ave. South, St. Petersburg, FL 33701.

FOR FURTHER INFORMATION CONTACT: Jennifer Moore or Stephania Bolden, NMFS, Southeast Region, at the address above or at (727) 824–5312, or Marta Nammack, NMFS, Office of Protected Resources, at (301) 713–1401. Reference materials regarding these determinations are available upon request or on the Internet at *http://sero.nmfs.noaa.gov*.

SUPPLEMENTARY INFORMATION:

Background

On June 11, 1991, we identified elkhorn and staghorn corals as ''candidates'' for listing under the ESA (56 FR 26797). Both species were subsequently removed from the candidate list on December 18, 1997, because we were not able to obtain sufficient information on their biological status and threats to meet the scientific documentation required for inclusion on the 1997 candidate species list (62 FR 37560).

Using data from a 1998 analysis and information obtained during a public comment period, we again added the two species to the ESA candidate species list on June 23, 1999 (64 FR 33466). These two species qualified as ESA candidate species at that time because there was some evidence they had undergone substantial declines in abundance or range from historic levels. On April 15, 2004, we established a ''species of concern'' list to differentiate those species for which we had concerns regarding their status from those species that were truly candidates for listing under the ESA (69 FR 19976). When we established this new list, we transferred both elkhorn and staghorn corals from the candidate species list to the species of concern list.

On March 4, 2004, the Center for Biological Diversity (CBD) petitioned us to list elkhorn, staghorn, and fused-staghorn corals as either threatened or endangered under the ESA and to designate critical habitat. On June 23, 2004, we made a positive 90–day finding (69 FR 34995) that CBD had presented substantial information indicating the petitioned actions may be warranted and announced the initiation of a formal status review as required by section 4(b)(3)(A) of the ESA. Concurrently, we solicited additional information from the public on these Acroporid corals regarding historic and current distribution and abundance, population status and trends, areas that may qualify as critical habitat, any current or planned activities that may adversely affect them, and known conservation efforts. Additional information was also requested during two public meetings held in December 2004 on: (1) distribution and abundance; (2) areas that may qualify as critical habitat; and (3) approaches or criteria that could be used to assess listing potential of the Acroporids (e.g., viability assessment, extinction risk, etc.).

In order to conduct a comprehensive status review, we convened an Atlantic Acropora Biological Review Team (BRT) to compile and analyze the best available scientific and commercial information on these species. The