Picture-wing fly
(Drosophila ochrobasis)

5-Year Review
Summary and Evaluation

U.S. Fish and Wildlife Service
Pacific Islands Fish and Wildlife Office
Honolulu, Hawaii

5-YEAR REVIEW

Species reviewed: Picture-wing fly (*Drosophila ochrobasis*)

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5-YEAR REVIEW
Picture-wing fly/*Drosophila ochrobasis*

1.0 GENERAL INFORMATION

1.1 Reviewers

Lead Regional Office:
Region 1, Endangered Species Program, Division of Recovery Jesse D'Elia, (503) 231-2349

Lead Field Office:
Pacific Islands Fish and Wildlife Office, Loyal Mehrhoff, Field Supervisor, (808) 792-9400

Cooperating Field Office(s):
N/A

Cooperating Regional Office(s):
N/A

1.2 Methodology used to complete the review:

This review was conducted by staff of the Pacific Islands Fish and Wildlife Office of the U.S. Fish and Wildlife Service (USFWS), beginning on April 8, 2010. The review was based on the final rule to list 12 Hawaiian picture-wing flies, designation of critical habitat for 12 species of picture-wing flies from the Hawaiian Islands Final Rule, the Recovery Outline for 12 Hawaiian picture-wing flies, current published and unpublished materials and expert opinions and knowledge on the *Drosophila ochrobasis* species. The draft five-year review was then reviewed by the Endangered Species Recovery Program Leader and the Assistant Field Supervisor for Endangered Species before signature by the Pacific Islands Fish and Wildlife Office Field Supervisor and transmittal to the Regional Office.

1.3 Background:

1.3.1 FR Notice citation announcing initiation of this review:

[USFWS] U.S. Fish and Wildlife Service. 2010. Endangered and threatened wildlife and plants; initiation of 5-year status reviews of 69 species in Idaho, Washington, Hawaii, Guam, and the Commonwealth of the Northern Mariana Islands. Federal Register 75(67):17947-17950.

1.3.2 Listing history

Original Listing
FR notice: [USFWS] U.S. Fish and Wildlife Service. 2006. Endangered and threatened wildlife and plants; Determination of status for 12 species of picture-wing flies from the Hawaiian Islands. Federal Register 71(89):26835-26852.
Date listed: May 9, 2006
Entity listed: Species
Classification: Endangered

Revised Listing, if applicable
FR notice: N/A
Date listed: N/A
Entity listed: N/A
Classification: N/A

1.3.3 Associated rulemakings:

[USFWS] U.S. Fish and Wildlife Service. 2008. Endangered and threatened wildlife and plants; Designation of critical habitat for 12 species of picture-wing flies from the Hawaiian Islands. Final Rule. 73(234):73794-73888.

Five critical habitat management units totaling 178 hectares (437 acres) have been designated for *Drosophila ochrobasis* on the island of Hawaii.

1.3.4 Review History: N/A

1.3.5 Species' Recovery Priority Number at start of this 5-year review: 5

1.3.6 Current Recovery Plan or Outline

Name of plan or outline: Recovery Outline for 12 Hawaiian Picture-wing Flies
Date issued: August 2006
Dates of previous revisions, if applicable: N/A

2.0 REVIEW ANALYSIS

2.1 Application of the 1996 Distinct Population Segment (DPS) policy

2.1.1 Is the species under review a vertebrate?

_____ ***Yes***
__X__ ***No***

2.1.2 Is the species under review listed as a DPS?

____ ***Yes***
_X__ ***No***

2.1.3 Was the DPS listed prior to 1996?

____ ***Yes***

____ ***No***

2.1.3.1 Prior to this 5-year review, was the DPS classification reviewed to ensure it meets the 1996 policy standards?

____ ***Yes***

____ ***No***

2.1.3.2 Does the DPS listing meet the discreteness and significance elements of the 1996 DPS policy?

____ ***Yes***

____ ***No***

2.1.4 Is there relevant new information for this species regarding the application of the DPS policy?

____ ***Yes***

__X__ ***No***

2.2 Recovery Criteria

2.2.1 Does the species have a final, approved recovery plan containing objective, measurable criteria?

____ ***Yes***

_X__ ***No***

2.2.2 Adequacy of recovery criteria.

2.2.2.1 Do the recovery criteria reflect the best available and most up-to date information on the biology of the species and its habitat?

____ ***Yes***

_____ ***No***

2.2.2.2 Are all of the 5 listing factors that are relevant to the species addressed in the recovery?

_____***Yes***

_____***No***

2.2.3 List the recovery criteria as they appear in the recovery plan, and discuss how each criterion has or has not been met, citing information:

A draft recovery plan for *Drosophila ochrobasis* is being developed but was not published at the time of completing this 5-year review.

2.3 Updated Information and Current Species Status

2.3.1 Biology and Habitat

2.3.1.1 New information on the species' biology and life history:
The general life cycle of Hawaiian *Drosophila* is typical 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. The larvae of *Drosophila ochrobasis* have been reported to feed within decomposing portions of three different host plant groups, *Myrsine* sp. (family Myrsinaceae), *Clermontia* sp. (family Campanulaceae), and *Marattia douglasii* (family Marattiaceae) (Montgomery 1975).

2.3.1.2 Abundance, population trends (e.g. increasing, decreasing, stable), demographic features (e.g., age structure, sex ratio, family size, birth rate, age at mortality, mortality rate, etc.), or demographic trends:
Bait can be used to survey for Hawaiian *Drosophila* but only to indicate the presence or absence of taxa. There is no technique currently available to uniquely mark individual flies and thereby quantify the number of *Drosophila ochrobasis* visiting the bait (K. Magnacca, *in litt*. 2010). In addition, Hawaiian *Drosophila* life cycles, are influenced by rainfall patterns and other environmental variables, making survey results difficult to compare over time and across sites. Even the very common species of picture-wing flies fluctuate widely seasonally as well as daily, confounding negative survey records for a taxa (K. Magnacca, *in litt*. 2012b).

Drosophila ochrobasis has been recorded from ten localities on four of Hawaii Island's five 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), *D. ochrobasis* is now less commonly observed from its historical localities (Table). Until 2006, the last observation of *D. ochrobasis* was a single individual recorded at the 1855 lava flow (Kipuka 9 and Kipuka 14) in 1986 (K. Kaneshiro, *in litt*. 2005). Several surveys between 1995 and 1997 failed to locate the species at many of its historical sites (K. Kaneshiro, *in litt*. 2005). During field surveys in 2006, Dr. Karl Magnacca recorded an observation of one individual on private land near Kawaiihae Uka, a previously unknown population site (K. Magnacca *in litt*. 2012a). In 2009 and 2010, five *D. ochrobasis* flies were observed on the Puu O Umi Preserve in the Kilohana exclosure (K. Magnacca, *in litt*. 2012a) in the Kohala Mountains.

TABLE. Total number of surveys (first number), number of surveys with *Drosophila ochrobasis* fly observations (second number), and total number of *D. ochrobasis* observed (third number) from 1965-2011 in historic *D. ochrobasis* ranges on the island of Hawaii

	Total No. surveys/No. of surveys with *Drosophila ochrobasis*/Total number of *D. ochrobasis* observed					
Years	**Kipuka 9, 14, and Pahipa**	**Hualalai**	**Kilauea**	**Pauahi**	**Pawaina**	**Kohala Mts.**
1965-1969	8/3/16	1/1/2	2/0/0		3/0/0	3/2/3
1970-1974	21/17/15 6		10/1/1	5/1/5	3/1/4	1/1/7
1975-1979	2/1/28	4/1/7	3/0/0	1/0/0		1/1/3
1980-1984	1/0/0	4/0/0				
1985-1989	3/1/1	1/0/0				
1990-1994	2/0/0	1/0/0				
1995-1999	2/0/0	2/0/0	1/0/0			
2006						1/1/1
2009						2/2/4
2010						1/1/1

2.3.1.3 Genetics, genetic variation, or trends in genetic variation (e.g., loss of genetic variation, genetic drift, inbreeding, etc.):
No new information is available.

2.3.1.4 Taxonomic classification or changes in nomenclature:
No changes in taxonomic classification have occurred. *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 1,690 meters (5,550 feet) above sea level. Based on chromosomal studies, *D. ochrobasis* is a member of the *Drosophila adiastola* group and appears to be most closely related to *Drosophila setosimentum* (Kaneshiro *et al*. 1995). Both the body and wings of *D. ochrobasis* are approximately 4.6 millimeters (0.18 inches) in length. The head is yellow in front and brown on the 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.

2.3.1.5 Spatial distribution, trends in spatial distribution (e.g. increasingly fragmented, increased numbers of corridors, etc.), or historic range (e.g. corrections to the historical range, change in distribution of the species' within its historic range, etc.):
Seasonal and day-to-day variability of *Drosophila* presence and detection with baits significantly complicates assessing the range of this species. Historically, *Drosophila ochrobasis* was widely distributed between 1,035 -1,690 meters (3,400-5,550 feet) in mesic to wet forest areas on the island of Hawaii. Prior to 2006, the species had been recorded from ten localities on four of the island's five volcanoes (Hualalai, Mauna Kea, Mauna Loa, and the Kohala mountains). *Drosophila ochrobasis* has been recorded almost every year from 1967 to 1975, ranging in number from 1 to 135 individuals (see Table section 2.3.1.2). *Drosophila ochrobasis* is now less commonly observed from its historical localities (Table). Until 2006, the last observation of *D. ochrobasis* was a single individual recorded at the 1855 lava flow (Kipuka 9 and Kipuka 14) in 1986 (K. Kaneshiro, *in litt*. 2005). Several surveys between 1995 and 1997 failed to locate the species at many of its historical sites (K. Kaneshiro, *in litt*. 2005). However, during field surveys in 2006, one individual was recorded on private land near Kawaiihae Uka, a previously unknown population site (K. Magnacca *in litt*. 2012a). This site is within montane, wet, *Metrosideros polymorpha* (ohia) forest with native shrubs and mixed grass species, located on the southwestern flank of the Kohala Mountains on the island of Hawaii. In 2009 and 2010, five *D. ochrobasis* flies were observed on the Puu O Umi Preserve in the Kilohana exclosure (K. Magnacca, *in litt*. 2012a) in the Kohala Mountains.

2.3.1.6 Habitat or ecosystem conditions (e.g., amount, distribution, and suitability of the habitat or ecosystem):
In accordance with section 3(5)(A)(i) of the Endangered Species Act and the regulations at 50 CFR 424.12, in determining which areas occupied at the time of listing to propose as critical habitat, we consider the Primary Constituent Elements (PCE) to be those physical and biological features that are essential to the conservation of the species and that may require special management or protection. The PCE for *Drosophila ochrobasis* are: (1) mesic to wet, montane, *Metrosideros polymorpha* (ohia), *Acacia koa* (koa), and *Cheirodendron* sp. forest between the elevations of 1,173–1,643 meters (3,850–5,390 feet); and (2) the larval stage host plants *Marattia douglasii, Myrsine lanaiensis, Myrsine lessertiana,* and *Myrsine sandwicensis, Clermontia calophylla, Clermontia clermontioides, Clermontia clermontioides* subspecies *rockiana, Clermontia hawaiiensis, Clermontia kohalae, Clermontia montis-loa, Clermontia parviflora,* and the listed endangered species, *Clermontia drepanomorpha, Clermontia lindseyana, Clermontia peleana, Clermontia pyrularia,* and *Clermontia waimeae,* which exhibit one or more life stages (from seedlings to senescent individuals) (USFWS, 2008).

A Final Rule establishing critical habitat for *Drosophila ochrobasis*, went into effect January 5, 2009 (USFWS, 2008). *Drosophila ochrobasis*-Unit 1-Kipuka 9 consists of 4 hectares (9 acres) of montane, wet, ohia forest with native shrubs, and is located within the Saddle Road area on the northeastern flank of Mauna Loa on the island of Hawaii. Ranging in elevation between 1,545–1,560 meters (5,075–5,125 feet), this unit is owned by the State of Hawaii and is largely managed as part of a State forest reserve. According to the most recent survey data (K. Kaneshiro, *in litt*. 2005), this unit was occupied by *D. ochrobasis* at the time of listing. This unit includes the known elevation range, moisture regime, and native forest components used by foraging adults that have been identified as the PCEs for this species. This unit also includes populations of *Clermontia* spp., *Marattia douglasii*, and *Myrsine* spp., the larval stage host plants associated with this species.

Drosophila ochrobasis-Unit 2-Kipuka 14 consists of 6 hectares (15 acres) of montane, wet, *Metrosideros polymorpha* forest with native shrubs, and is located within the Saddle Road area on the northeastern flank of Mauna Loa on the island of Hawaii. Ranging in elevation from 1,555–1,570 meters (5,105– 5,145 feet), this unit is owned by the State of Hawaii and is largely managed as part of a State forest reserve. According to the most recent survey data (K. Kaneshiro, *in litt*. 2005), this unit was occupied by *D. ochrobasis* at the time of listing. This unit includes the known elevation range, moisture regime, and native forest components used by foraging adults that have been identified as the PCEs for this species. This unit also includes populations of *Clermontia* spp., *Marattia douglasii*, and *Myrsine* spp., the larval stage host plants associated with this species.

Drosophila ochrobasis-Unit 3-Kohala Mountains East consists of 78 hectares (193 acres) of montane, wet, *Metrosideros polymorpha* forest with native shrubs and mixed grass species, and is located on the southeastern flank of the Kohala Mountains on the island of Hawaii. Ranging in elevation from 1,175–1,260 meters (3,850–4,140 feet), this unit is owned by the State of Hawaii and is largely managed as part of a State forest reserve. According to the most recent survey data (K. Kaneshiro, *in litt*. 2005), this unit was occupied by *D. ochrobasis* at the time of listing.

Drosophila ochrobasis-Unit 4-Kohala Mountains West consists of 54 hectares (132 acres) of montane, wet, *Metrosideros polymorpha* forest with native shrubs and mixed grass species, and is located on the southwestern flank of the Kohala Mountains on the island of Hawaii. Ranging in elevation between 1,510–1,625 meters (4,945– 5,325 feet), this unit is privately and State-owned, and is largely managed as part of a State forest reserve. *Drosophila ochrobasis* was not historically known from

this area, but was first observed here during field surveys conducted in October of 2006 (K. Magnacca, *in litt*. 2006), only four months from the date of listing of the species (June 2006). Given the fact that this area was surveyed so soon after the listing of the species, and contains relatively intact, closed-canopy, native forest, including the fly's host plant species, we have determined that it was occupied by *D. ochrobasis* at the time of the listing. This unit includes the known elevation range, moisture regime, and native forest components used by foraging adults that have been identified as the PCEs for this species. This unit also includes populations of *Clermontia* spp., *Marattia douglasii*, and *Myrsine* spp., the larval stage host plants associated with this species.

Drosophila ochrobasis-Unit 5-Upper Kahuku consists of 36 hectares (88 acres) of montane, wet, *Metrosideros polymorpha* forest, and is located on the southern flank of Mauna Loa on the island of Hawaii. Ranging in elevation from 1,595–1,645 meters (5,235–5,390 feet), this unit is owned by the State of Hawaii and the National Park Service (Hawaii Volcanoes National Park). The area within this unit is largely managed as part of a State forest reserve and as a national park. According to the most recent survey data (K. Kaneshiro, *in litt*. 2005), this unit was occupied by *D. ochrobasis* at the time of listing. This unit includes the known elevation range, moisture regime, and native forest components used by foraging adults that have been identified as the PCEs for this species. This unit also includes populations of *Clermontia* spp., *Marattia douglasii*, and *Myrsine* spp., the larval stage host plants associated with this species.

2.3.1.7 Other:

2.3.2 Five-Factor Analysis (threats, conservation measures, and regulatory mechanisms)

2.3.2.1 Present or threatened destruction, modification or curtailment of its habitat or range:

Drosophila ochrobasis were historically known from 10 sites, widely distributed across the island of Hawaii. However, the species has not been recently observed at many of these sites (K. Kaneshiro, *in litt*. 2005; Science Panel 2005; Magnacca, *in litt*. 2012a). The larvae of this species have been reported to feed within decomposing portions of three different host plant groups, *Myrsine* spp. (family Myrsinaceae), *Clermontia* spp. (family Campanulaceae), and *Marattia douglasii* (family Marattiaceae) (Montgomery 1975). The major threats to *D. ochrobasis* include current and future degradation and modification to their limited remaining habitat from feral ungulates, nonnative plants, rats, and fire, resource competition and predation by nonnative insects, and inadequate regulatory mechanisms that protect the species (Smith 1985; Cuddihy and Stone 1990; Howarth et al. 2001; Kishinami 2001; Science Panel 2005).

Feral ungulates destroy host plant seedlings and habitat by the trampling action of their hooves and through the spread of seeds of nonnative plants (Kishinami 2001). Goats, pigs, cattle, and rats directly feed upon *Drosophila ochrobasis* host plants. Cattle and goats contribute to erosion on some steeper slopes where host plants occur.

The invasion of several nonnative plants, particularly *Psidium cattleianum*, *Rubus ellipticus* (yellow Himalayan raspberry), *Passiflora mollissima*, and *Pennisetum setaceum*, contributes to the degradation of picture-wing host plant habitat on the island of Hawaii (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 square kilometer (1,930 square mile) 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), and the vine *Passiflora mollissima* overloads the branches of native trees and shades out native plants below (Wagner *et al*. 1999). The grass *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).

The Hawaiian Islands now support several established species of nonnative insects which compete with the picture-wing flies within their larval stage host plants. The most important group of nonnative insect competitors includes tipulid flies (crane flies, family *Tipulida*e). The larvae of some species within this group feed within the decomposing bark of C*lermontia* spp., the host plant for *Drosophila ochrob*asis (Science Panel 2005). Western yellowjackets are another nonnative arthropod that pose a serious threat to picture-wing flies through predation (Howarth and Medeiros 1989; Howarth and Ramsay 1991; Howarth et al. 2001).

2.3.2.2 Overutilization for commercial, recreational, scientific, or educational purposes:
Overutilization is not known to be a threat to this species.

2.3.2.3 Disease or predation:
Disease is not known to be a threat to any of the Hawaiian picture-wing flies. However, predation by nonnative insects and other arthropods poses a grave threat to Hawaii's native *Drosophila*e (Howarth and Medeiros 1989; Howarth and Ramsay 1991; Howarth et al. 2001). *Drosophila ochrobasis* flies at all life stages, face substantial predation pressure from nonnative insects such as western yellowjacket wasps (Howarth et al.

2001).

2.3.2.4 Inadequacy of existing regulatory mechanisms:
Regulatory mechanisms remain inadequate for thorough protection of the species, particularly quarantine regulations pertaining to the prevention of accidentally introduced arthropods, and augmentation and introduction of biological control agents in Hawaii.

2.3.2.5 Other natural or manmade factors affecting its continued existence:
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 (Kishinami 2001). The seeds, bark, and flowers of several of the picture-wing flies' host plants, including *Clermontia* spp., are susceptible to herbivory by all the rat species (Science Panel 2005; K. Magnacca, *in litt*. 2005). The herbivory 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).

The effects of climate change on picture-wing flies and host-plant range will likely be significant. Life cycle characteristics such as length of larval period and adult longevity are highly dependent on temperature and other environmental factors affected by climate change. In general, stage length and longevity decrease with temperature increase. Fecundity and sex ratio may also be influenced by temperature in some species. However, current climate change analyses in the Pacific Islands lack sufficient spatial resolution to make predictions on impacts to this species. The Pacific Islands Climate Change Cooperative has currently funded climate modeling that will help resolve these spatial limitations. We anticipate high spatial resolution climate outputs by 2013.

2.4 Synthesis

Hawaii picture-wing fly, *Drosophila ochrobasis*, is an endangered endemic species found only on the island of Hawaii. *Drosophila ochrobasis* is restricted to the natural distribution of its host plants in the *Clermontia* species family, Campanulaceae.

The Primary Constituent Elements for *Drosophila ochrobasis* are: (1) Mesic to wet, montane, *Metrosideros polymorpha* (ohia), *Acacia koa* (koa), and *Cheirodendron* sp. forest between the elevations of 1,173–1,643 meters (3,850–5,390 feet); and (2) the larval stage host plants *Clermontia calophylla, Clermontia clermontioides, Clermontia clermontioides* subspecies *rockiana, Clermontia drepanomorpha, Clermontia hawaiiensis, Clermontia kohalae, Clermontia*

lindseyana, Clermontia montis-loa, Clermontia parviflora, Clermontia peleana, Clermontia pyrularia, Clermontia waimeae, Marattia douglasii, Myrsine lanaiensis, Myrsine lessertiana, and *Myrsine sandwicensis,* which exhibit one or more life stages (from seedlings to senescent individuals). On January 5, 2009, the Final Rule establishing critical habitat for *D. ochrobasis,* went into effect. Five critical habitat management units totaling 178 hectares (437 acres) have been designated for *D. ochrobasis* on the island of Hawaii.

Historically, *Drosophila ochrobasis* was widely distributed between 1,035 to 1,690 meters (3,400 and 5,550 feet) on the island of Hawaii. Prior to 2006, the species had been recorded from ten localities on four of the island's five volcanoes (Hualalai, Mauna Kea, Mauna Loa, and the Kohala mountains). *Drosophila ochrobasis* was recorded almost every year from 1967 to 1975, ranging in number from 1 to 135 individuals per survey. *Drosophila ochrobasis* is now less commonly observed from its historical localities. Until 2006, the last observation of *D. ochrobasis* was a single individual recorded at the 1855 lava flow in 1986. Several surveys between 1995 and 1997 failed to locate the species at many of its historical sites. However, during field surveys in 2006, one individual was recorded near Kawaiihae Uka on the southwestern flank of the Kohala Mountains, a previously unknown population site. There is still much to learn about the current range of this species. In 2009 and 2010, five *D. ochrobasis* flies were observed on the Puu O Umi Preserve in the Kilohana exclosure (K. Magnacca, *in litt*. 2012a) in the Kohala Mountains.

The major threats to *Drosophila ochrobasis* include current and future degradation and modification to their limited remaining habitat from feral ungulates, nonnative plants, rats, and fire, resource competition and predation by nonnative insects, and inadequate regulatory mechanisms that protect the species from the introduction of nonnative insects and the loss of picture-wing fly host plants. Climate change may significantly impact the life cycle characteristics of *D. ochrobasis* and the range of its host plants. A draft recovery plan for this species is being developed.

Only 6 observations of *Drosophila ochrobasis* have been reported since the species was listed as endangered under the Endangered Species Act. Repeated surveys failed to detect *D. ochrobasis* at the majority of its historical locations and most threats are not being managed. Therefore, *D. ochrobasis* meets the definition of endangered, as it remains in danger of extinction throughout its range.

3.0 RESULTS

3.1 Recommended Classification:

____ Downlist to Threatened
____ Uplist to Endangered
____ Delist

____ *Extinction*
____ *Recovery*
____ *Original data for classification in error*
__X__ **No change is needed**

3.2 New Recovery Priority Number:

Brief Rationale:

3.3 Listing and Reclassification Priority Number:
N/A

Reclassification (from Threatened to Endangered) Priority Number: ____
Reclassification (from Endangered to Threatened) Priority Number: ____
Delisting (regardless of current classification) Priority Number: ____

Brief Rationale:

4.0 RECOMMENDATIONS FOR FUTURE ACTIONS

1. Develop and implement a Recovery Plan.

2. Protect *Drosophila ochrobasis* and *Clermontia* spp. habitat and control fire, rats, nonnative insects, and ungulate threats.

3. Eliminate or manage nonnative *Psidium cattleianum, Rubus ellipticus, Passiflora mollissima*, and *Pennisetum setaceum* plants and other invasive plants that compete with *Clermontia* spp. and increase wildfire risk.

4. Survey and document predatory threats.

5. Develop and implement a systematic *Drosophila ochrobasis* survey and monitoring plan that includes historic habitats and other suitable habitats.

6. Evaluate the need to reestablish or supplement *Clermonita* spp. and wild picture-wing fly populations within their historical range.

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Signature Page
U.S. FISH AND WILDLIFE SERVICE
5-YEAR REVIEW of Picture-wing fly
(*Drosophila ochrobasis*)

Current Classification: Endangered

Recommendation resulting from the 5-Year Review:

____ Downlist to Threatened
____ Uplist to Endangered
____ Delist
_X_ No change needed

Appropriate Listing/Reclassification Priority Number, if applicable: _____

Review Conducted By:
Diane Sether, Invertebrate Biologist
Jess Newton, Endangered Species Recovery Program Leader
Assistant Field Supervisor for Endangered Species

Approved for Jess Newton Date 8/28/2012
Field Supervisor, Pacific Islands Fish and Wildlife Office