

The Pacific Islands U. S. Fish and Wildlife Service (Service) Office provides environmental review of renewable energy projects in support of the Department of the Interior’s initiatives to advance environmentally appropriate renewable energy. We work with others to support our nation’s renewable energy goals while protecting our nation’s wildlife and their habitats. We review projects that have the potential to affect wildlife protected by federal laws such as the Endangered Species Act (ESA), the Fish and Wildlife Coordination Act (FWCA); the National Invasive Species Act (NISA); and the Migratory Bird Treaty Act (MBTA). The following tables include the Service’s primary concerns to trust resources regarding alternative energy development (primarily impacts on federally listed species and the aquatic and marine ecosystems). There are other resources covered under NISA and MBTS that may need to be considered when analyzing impacts of a particular development.

ON-SHORE WIND

Species	Islands of Occurrence	Potential Impacts
Hawaiian hoary bat	All Main Hawaiian Islands	Habitat ^a , Collision, Noise disturbance during construction and operation
Seabirds (Newell’s shearwater and Hawaiian petrel) ^b	All Main Hawaiian Islands	Habitat ^a , Collision, Noise and vibration disturbance during construction
Hawaiian goose (Nene)	Hawaii, Kauai, Maui and Molokai	Habitat ^a , Collision, Noise disturbance during construction and operation
Hawaiian hawk	Hawaii	Habitat ^a , Collision, Noise disturbance during construction and operation
Blackburn’s sphinx moth	Hawaii, Lanai, Maui and Molokai	Habitat ^a
Waterbirds (Hawaiian coot, stilt, gallinule [moorhen], and duck) ^c	All Main Hawaiian Islands	Habitat ^a , Collision, Noise disturbance during construction and operation
Sea turtles (Green and Hawksbill) ^d	All Main Hawaiian Islands	Habitat ^a
Hawaiian picture-wing flies (12 species)	All Main Hawaiian Islands (Oahu-6; Hawaii-3; Kauai-1; Molokai -1; Maui-1)	Habitat ^a
Pacific Hawaiian damselfly Flying earwig Hawaiian damselfly	Hawaii, Maui and Molokai Maui	Habitat ^a
Oahu tree snail (41 species) Newcomb’s tree snail Lanai tree snail (2 species)	Oahu Kauai and Maui Lanai	Habitat ^a
Listed plants and Critical habitat	All Main Hawaiian Islands	Habitat ^a

OFF-SHORE WIND

Species	Islands of Concern	Potential Impacts
Hawaiian hoary bat	All Main Hawaiian Islands	Collision
Seabirds (Newell's shearwater and Hawaiian petrel) ^b	All Main Hawaiian Islands	Habitat ^a , Collision
Hawaiian goose (Nene)	Hawaii, Kauai, Maui and Molokai	Collision
Hawaiian hawk	Hawaii	Collision
Waterbirds (Hawaiian coot, stilt, gallinule [moorhen], and duck) ^c	All Main Hawaiian Islands	Collision
Sea turtles (Green and Hawksbill) ^d	All Main Hawaiian Islands	Habitat ^a
Marine/Coastal/Aquatics	All Main Hawaiian Islands	Habitat, Native stream fauna, marine habitat, coral

SOLAR

Species	Islands of Concern	Potential Impacts
Hawaiian hoary bat	All Main Hawaiian Islands	Habitat ^a , Noise disturbance during construction
Hawaiian goose (Nene)	Hawaii, Kauai, Maui and Molokai	Habitat ^a , Noise disturbance during construction
Hawaiian hawk	Hawaii	Habitat ^a , Noise disturbance during construction
Blackburn's sphinx moth	Hawaii, Lanai, Maui and Molokai	Habitat ^a
Waterbirds (Hawaiian coot, stilt, gallinule [moorhen], and duck) ^c	All Main Hawaiian Islands	Habitat ^a , Collision, Noise disturbance during construction
Hawaiian picture-wing flies (12 species)	All Main Hawaiian Islands (Oahu-6; Hawaii-3; Kauai-1; Molokai -1; Maui-1)	Habitat ^a
Pacific Hawaiian damselfly Flying earwig Hawaiian damselfly	Hawaii, Maui and Molokai Maui	Habitat ^a
Oahu tree snail (41 species) Newcomb's tree snail Lanai tree snail (2 species)	Oahu Kauai and Maui Lanai	Habitat ^a
Listed plants and Critical habitat	All Main Hawaiian Islands	Habitat ^a

BIOFUELS

Species	Islands of Concern	Potential Impacts
Hawaiian hoary bat	All Main Hawaiian Islands	Habitat ^a
Seabirds (Newell's shearwater and Hawaiian petrel) ^b	All Main Hawaiian Islands	Habitat ^a
Hawaiian goose (Nene)	Hawaii, Kauai, Maui and Molokai	Habitat ^a
Hawaiian hawk	Hawaii	Habitat ^a
Waterbirds (Hawaiian coot, stilt, gallinule [moorhen], and duck) ^c	All Main Hawaiian Islands	Habitat ^a
Listed plants and Critical habitat	All Main Hawaiian Islands	Habitat ^a

GEOHERMAL

Species	Islands of Concern	Potential Impacts
Hawaiian hoary bat	All Main Hawaiian Islands	Habitat ^a , Noise disturbance during construction, air quality, ground water
Seabirds (Newell's shearwater and Hawaiian petrel) ^b	All Main Hawaiian Islands	Habitat ^a , Noise and vibration disturbance during construction, air quality, ground water
Hawaiian goose (Nene)	Hawaii, Kauai, Maui and Molokai	Habitat ^a , Noise disturbance during construction, air quality, ground water
Hawaiian hawk	Hawaii	Habitat ^a , Noise disturbance during construction, air quality, ground water
Waterbirds (Hawaiian coot, stilt, gallinule [moorhen], and duck) ^c	All Main Hawaiian Islands	Habitat ^a , Noise disturbance during construction, air quality, ground water
Sea turtles (Green and Hawksbill) ^d	All Main Hawaiian Islands	Habitat ^a , ground water
Marine/Coastal/Aquatics including anchialine pools	All Main Hawaiian Islands	Habitat, ground water, Native stream fauna, marine habitat, coral

HYDRO-POWER

Species	Islands of Concern	Potential Impacts
Seabirds (Newell's shearwater and Hawaiian petrel) ^b	All Main Hawaiian Islands	Habitat ^a , Noise and vibration disturbance during construction, air quality, ground water
Waterbirds (Hawaiian coot, stilt, gallinule [moorhen], and duck) ^c	All Main Hawaiian Islands	Habitat ^a , Noise disturbance during construction, Water quantity and flow fluctuations
Hawaiian picture-wing flies (12 species)	All Main Hawaiian Islands (Oahu-6; Hawaii-3; Kauai-1; Molokai -1; Maui-1)	Habitat ^a
Pacific Hawaiian damselfly Flying earwig Hawaiian damselfly	Hawaii, Maui and Molokai Maui	Habitat ^a
Oahu tree snail (41 species) Newcomb's tree snail Lanai tree snail (2 species)	Oahu Kauai and Maui Lanai	Habitat ^a
Marine/Coastal/Aquatics	All Main Hawaiian Islands	Habitat, Water quantity and flow fluctuations, Native stream fauna, marine habitat, coral

INFRASTRUCTURE (Transmission lines, towers, antennas, lighting, etc.) – can be associated with any energy project

Species	Islands of Concern	Potential Impacts
Hawaiian hoary bat	All Main Hawaiian Islands	Habitat ^a , Collision ^e , Noise disturbance during construction
Seabirds (Newell's shearwater and Hawaiian petrel) ^b	All Main Hawaiian Islands	Habitat ^a , Collision, Noise and vibration disturbance during construction, Lighting
Hawaiian goose (Nene)	Hawaii, Kauai, Maui and Molokai	Habitat ^a , Noise disturbance during construction
Hawaiian hawk	Hawaii	Habitat ^a , Noise disturbance during construction
Blackburn's sphinx moth	Hawaii, Lanai, Maui and Molokai	Habitat ^a
Waterbirds (Hawaiian coot, stilt, gallinule [moorhen], and duck) ^c	All Main Hawaiian Islands	Habitat ^a , Noise disturbance during construction
Sea turtles (Green and Hawksbill) ^d	All Main Hawaiian Islands	Habitat ^a , Lighting
Listed plants and Critical habitat	All Main Hawaiian Islands	Habitat ^a
Hawaiian picture-wing flies (12 species)	All Main Hawaiian Islands (Oahu-6; Hawaii-3; Kauai-1; Molokai -1; Maui-1)	Habitat ^a

Pacific Hawaiian damselfly Flying earwig Hawaiian damselfly	Hawaii, Maui and Molokai Maui	Habitat ^a
Oahu tree snail (41 species) Newcomb's tree snail Lanai tree snail (2 species)	Oahu Kauai and Maui Lanai	Habitat ^a
Marine/Coastal/Aquatics	All Main Hawaiian Islands	Habitat, Native stream fauna, marine habitat, coral

^a Habitat impacts can include direct effects of clearing as well as indirect effects including introduction or spreading of invasive species and increased fire risk.

^b 90% of Newell's shearwaters breed on Kauai. Seabirds are attracted to lights and after circling the lights they may collide with nearby wires, buildings, or other structures or they may land on the ground due to exhaustion. Downed seabirds are subject to increased mortality due to collision with automobiles, starvation, and predation.

^c Potential impacts may occur in areas within ½ mile of wetlands and streams. Gallinules (moorhen) are only found on Kauai and Oahu.

^d All Hawaiian beaches are potential nesting and basking habitat for sea turtles. Nesting turtles may be deterred from approaching or laying successful nests on lighted or disturbed beaches. Hatchlings that emerge from unprotected nests may be disoriented by artificial lighting, move inland instead of toward the ocean, and not make it successfully to the ocean.

^e Hawaiian hoary bats can become entangled when barbed wire is used in fencing.