

## Appendix A: Carbaryl “No Effect” Calls and Concurrence with “Not Likely to Adversely Affect” Calls

### Appendix A

*Review of the EPA’s “no effect” determinations and concurrence with the EPA’s “not likely to adversely affect” determinations for carbaryl.*

#### No effect determinations

In their biological evaluation (BE) and subsequent correspondence for carbaryl, the EPA provided determinations of “no effect” for 421 listed species and 377 designated and proposed critical habitats (Table 1). EPA reached a determination of “no effect” in two ways: if a listed species range or its critical habitat is outside the action area and any carbaryl use areas (i.e., agricultural and non-agricultural use areas), or if effects are not anticipated for the species or its prey, pollination, habitat, or dispersal based on screening conservative toxicity endpoints against the highest estimated environmental concentration predicted. EPA reached “no effect” determinations for critical habitats if they did not occur where carbaryl may be used or they do not expect effects to any relevant physical and biological features (PBFs). After reviewing EPA’s “no effect” calls, we reviewed the physical and biological features listed in the critical habitat proposal or designation, where applicable, and especially focused on six categories that could be affected by carbaryl and other pesticides: arthropod prey, non-arthropod prey, water quality, pollinators, host fish, and habitat function. For the critical habitats that we adopt EPA’s “no effect” determinations, they either did not occur where carbaryl may be used or we do not expect effects to any relevant PBFs. We adopt EPA’s “no effect” determinations for most of these species and critical habitats as their ranges or designated areas fall completely out of the action area, will not experience any exposure (e.g., only occur in areas far from agriculture or insecticide residues will be so dilute that they will not cause any effects), will not experience any toxic effects, or will not experience any indirect effects as they are not reliant on any resources that will be adversely affected by carbaryl. For the rim rock crowned snake, Florida Keys mole skink, Pearl River map turtle, and key-ring necked snake, we do not adopt the “no effect” determination and analyzed the species further in our Opinion. Some of the plants in Table 1 may be exposed to carbaryl, but there will be no response or effect of the plant from carbaryl because they do not rely on insect pollinators and there are no direct effects anticipated for plants from exposure to the chemical itself.

**Table 1. Listed species and critical habitats with “no effect” determinations<sup>1</sup>. For one species (Entity ID 5944, designated with an asterisk below), we did not adopt EPA’s “no effect” determination, and we analyzed it further in our Opinion.**

Taxa group <sup>2</sup>	Entity ID	Common name	Scientific name	Status
Birds	75	Nihoa millerbird (old world warbler)	<i>Acrocephalus familiaris kingi</i>	Endangered

<sup>1</sup> Three fish species (tadpole madtom (*Noturus gyrinus*), mimic shiner (*Notropis volucellus*), and northern pike (*Esox lucius*)) were included in EPA’s biological evaluation that are unlisted, so we did not include in our biological opinion or concurrence.

<sup>2</sup> Fl. Plants = Flowering Plants

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Taxa group <sup>2</sup>	Entity ID	Common name	Scientific name	Status
Birds	70	Laysan duck	<i>Anas laysanensis</i>	Endangered
Birds	150	Oahu elepaio	<i>Chasiempis ibidis</i>	Endangered
Birds	68	Hawaiian crow	<i>Corvus hawaiiensis</i>	Endangered
Birds	141	White-necked crow	<i>Corvus leucognaphalus</i>	Endangered
Birds	10073	‘I‘iwi	<i>Drepanis coccinea</i>	Threatened
Birds	65	Akiapolaau	<i>Hemignathus wilsoni</i>	Endangered
Birds	10220	Mt. Rainier white-tailed ptarmigan	<i>Lagopus leucura rainierensis</i>	Proposed Threatened
Birds	79	Palila (honeycreeper)	<i>Loxioides bailleui</i>	Endangered
Birds	6522	Akekee	<i>Loxops caeruleirostris</i>	Endangered
Birds	97	Hawaii akepa	<i>Loxops coccineus</i>	Endangered
Birds	112	Hawaii creeper	<i>Loxops mana</i>	Endangered
Birds	106	Molokai thrush	<i>Myadestes lanaiensis rutha</i>	Endangered
Birds	86	Puaiohi	<i>Myadestes palmeri</i>	Endangered
Birds	4136	Akikiki	<i>Oreomystis bairdi</i>	Endangered
Birds	74	‘Akohekohe (crested honeycreeper)	<i>Palmeria dolei</i>	Endangered
Birds	99	Oahu alauahio	<i>Paroreomyza maculata</i>	Endangered
Birds	81	Maui parrotbill (Kiwikiu)	<i>Pseudonestor xanthophrys</i>	Endangered
Birds	78	‘O‘u (honeycreeper)	<i>Psittirostra psittacea</i>	Endangered
Birds	90	Bermuda petrel	<i>Pterodroma cahow</i>	Endangered
Birds	6345	Thick-billed parrot	<i>Rhynchopsitta pachyrhyncha</i>	Endangered
Birds	71	Laysan finch	<i>Telespiza cantans</i>	Endangered
Birds	72	Nihoa finch	<i>Telespiza ultima</i>	Endangered
Birds	11674	Lesser prairie-chicken (northern DPS)	<i>Tympanuchus pallidicinctus</i>	Threatened
Birds	11675	Lesser prairie-chicken (southern DPS)	<i>Tympanuchus pallidicinctus</i>	Endangered
Bivalves	11656	Ouachita fanshell	<i>Cyprogenia</i> sp. cf. <i>aberti</i>	Threatened
Bivalves	9802	Salina mucket	<i>Potamilus metnecktayi</i>	Proposed Endangered

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Taxa group <sup>2</sup>	Entity ID	Common name	Scientific name	Status
Crustaceans	10794	Miami Cave crayfish	<i>Procambarus milleri</i>	Proposed Threatened
Ferns / Allies	1193	Palai la‘au	<i>Adenophorus periens</i>	Endangered
Ferns / Allies	1197	No common name	<i>Asplenium</i> (=Diellia) <i>dielfalcatum</i> (=falcata)	Endangered
Ferns / Allies	1196	No common name	<i>Asplenium dielirectum</i>	Endangered
Ferns / Allies	10586	No common name	<i>Asplenium diellaciniatum</i>	Endangered
Ferns / Allies	7529	No common name	<i>Asplenium dielmannii</i>	Endangered
Ferns / Allies	1218	No common name	<i>Asplenium dielpallidum</i>	Endangered
Ferns / Allies	1194	No common name	<i>Asplenium peruvianum</i> var. <i>insulare</i>	Endangered
Ferns / Allies	1211	No common name	<i>Asplenium unisorum</i>	Endangered
Ferns / Allies	1205	Pauoa	<i>Ctenitis squamigera</i>	Endangered
Ferns / Allies	10587	No common name	<i>Deparia kaalaana</i>	Endangered
Ferns / Allies	1198	No common name	<i>Diplazium molokaiense</i>	Endangered
Ferns / Allies	9962	No common name	<i>Doryopteris angelica</i>	Endangered
Ferns / Allies	2268	No common name	<i>Doryopteris takeuchii</i>	Endangered
Ferns / Allies	9963	Palapalai aumakua	<i>Dryopteris crinalis</i> var. <i>podosorus</i>	Endangered
Ferns / Allies	2782	Hohiu	<i>Dryopteris glabra</i> var. <i>pusilla</i>	Endangered
Ferns / Allies	10594	olua	<i>Hypolepis hawaiiensis</i> var. <i>mauiensis</i>	Endangered
Ferns / Allies	1200	Ihi‘ihi	<i>Marsilea villosa</i>	Endangered
Ferns / Allies	1311	Kupukupu makali‘i	<i>Menisciopsis boydiae</i>	Endangered
Ferns / Allies	1840	No common name	<i>Microlepia strigosa</i> var. <i>mauiensis</i>	Endangered

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Ferns / Allies	1207	Wawae‘iole	<i>Phlegmariurus mannii</i>	Endangered
Ferns / Allies	1208	Wawae‘iole	<i>Phlegmariurus nutans</i>	Endangered
Ferns / Allies	4680	No common name	<i>Phlegmariurus stemmermanniae</i>	Endangered
Ferns / Allies	1202	No common name	<i>Pteris lidgatei</i>	Endangered
Fishes	271	Pygmy madtom	<i>Noturus stanauli</i>	Endangered
Fishes	9503	Pygmy madtom	<i>Noturus stanauli</i>	EXPN <sup>3</sup>
Fishes	12174	Little Kern golden trout	<i>Oncorhynchus mykiss whitei</i>	Threatened
Fl. Plants	618	No common name	<i>Abutilon sandwicense</i>	Endangered
Fl. Plants	619	Liliwai	<i>Acaena exigua</i>	Endangered
Fl. Plants	497	No common name	<i>Achyranthes mutica</i>	Endangered
Fl. Plants	874	Round-leaved chaff-flower	<i>Achyranthes splendens</i> var. <i>rotundata</i>	Endangered
Fl. Plants	11017	Navasota false foxglove	<i>Agalinis navasotensis</i>	Proposed Endangered
Fl. Plants	621	Mahoe	<i>Alectryon macrococcus</i>	Endangered
Fl. Plants	499	No common name	<i>Amaranthus brownii</i>	Endangered
Fl. Plants	635	‘Ahinahina	<i>Argyroxiphium sandwicense</i> ssp. <i>macrocephalum</i>	Threatened
Fl. Plants	6845	Pa‘iniu	<i>Astelia waialealae</i>	Endangered
Fl. Plants	2278	Ko‘oko‘olau	<i>Bidens amplexans</i>	Endangered
Fl. Plants	7617	Ko‘oko‘olau	<i>Bidens campylotheca</i> ssp. <i>pentamera</i>	Endangered
Fl. Plants	8277	Ko‘oko‘olau	<i>Bidens campylotheca</i> ssp. <i>waihoiensis</i>	Endangered
Fl. Plants	8338	Ko‘oko‘olau	<i>Bidens conjuncta</i>	Endangered
Fl. Plants	10479	Kookoolau	<i>Bidens hillebrandiana</i> ssp. <i>hillebrandiana</i>	Endangered

<sup>3</sup> EXPN = non-essential experimental population

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Fl. Plants	4589	Ko‘oko‘olau	<i>Bidens micrantha</i> ssp. <i>ctenophylla</i>	Endangered
Fl. Plants	645	Ko‘oko‘olau	<i>Bidens micrantha</i> ssp. <i>kalealaha</i>	Endangered
Fl. Plants	646	Ko‘oko‘olau	<i>Bidens wiebkei</i>	Endangered
Fl. Plants	648	No common name	<i>Bonamia menziesii</i>	Endangered
Fl. Plants	650	Pua ‘ala	<i>Brighamia rockii</i>	Endangered
Fl. Plants	7116	Maui reedgrass	<i>Calamagrostis expansa</i>	Endangered
Fl. Plants	654	‘Awikiwiki	<i>Canavalia molokaiensis</i>	Endangered
Fl. Plants	2118	‘Awikiwiki	<i>Canavalia napaliensis</i>	Endangered
Fl. Plants	7805	‘Awikiwiki	<i>Canavalia pubescens</i>	Endangered
Fl. Plants	11023	Swale paintbrush	<i>Castilleja ornata</i>	Proposed Endangered
Fl. Plants	3388	Papala	<i>Charpentiera densiflora</i>	Endangered
Fl. Plants	671	‘Oha wai	<i>Clermontia lindseyana</i>	Endangered
Fl. Plants	1097	‘Oha wai	<i>Clermontia oblongifolia</i> ssp. <i>brevipes</i>	Endangered
Fl. Plants	1098	‘Oha wai	<i>Clermontia oblongifolia</i> ssp. <i>mauiensis</i>	Endangered
Fl. Plants	672	‘Oha wai	<i>Clermontia peleana</i>	Endangered
Fl. Plants	1188	‘Oha wai	<i>Clermontia samuelii</i>	Endangered
Fl. Plants	674	Kauila	<i>Colubrina oppositifolia</i>	Endangered
Fl. Plants	1175	Haha	<i>Cyanea acuminata</i>	Endangered
Fl. Plants	1099	Haha	<i>Cyanea asarifolia</i>	Endangered
Fl. Plants	7892	Haha	<i>Cyanea asplenifolia</i>	Endangered
Fl. Plants	3540	Haha	<i>Cyanea calycina</i>	Endangered
Fl. Plants	1100	Haha	<i>Cyanea copelandii</i> ssp. <i>copelandii</i>	Endangered
Fl. Plants	1185	Haha	<i>Cyanea copelandii</i> ssp. <i>haleakalaensis</i>	Endangered
Fl. Plants	1224	Haha	<i>Cyanea crispa</i>	Endangered

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Fl. Plants	1101	Haha	<i>Cyanea dunbariae</i>	Endangered
Fl. Plants	10222	Haha	<i>Cyanea duvalliorum</i>	Endangered
Fl. Plants	1278	Haha	<i>Cyanea eleeleensis</i>	Endangered
Fl. Plants	1052	Haha	<i>Cyanea gibsonii</i>	Endangered
Fl. Plants	1102	Haha	<i>Cyanea glabra</i>	Endangered
Fl. Plants	684	Haha	<i>Cyanea grimesiana</i> ssp. <i>grimesiana</i>	Endangered
Fl. Plants	1049	Haha	<i>Cyanea grimesiana</i> ssp. <i>obatae</i>	Endangered
Fl. Plants	1050	Haha	<i>Cyanea hamatiflora</i> ssp. <i>carlsonii</i>	Endangered
Fl. Plants	1186	Haha	<i>Cyanea hamatiflora</i> ssp. <i>hamatiflora</i>	Endangered
Fl. Plants	10223	Haha Nui	<i>Cyanea horrida</i>	Endangered
Fl. Plants	535	Haha	<i>Cyanea humboldtiana</i>	Endangered
Fl. Plants	10588	No common name	<i>Cyanea kauaulaensis</i>	Endangered
Fl. Plants	9952	Haha	<i>Cyanea kolekoleensis</i>	Endangered
Fl. Plants	1181	Haha	<i>Cyanea koolauensis</i>	Endangered
Fl. Plants	4961	Haha	<i>Cyanea kuhlhewa</i>	Endangered
Fl. Plants	1968	Haha	<i>Cyanea kunthiana</i>	Endangered
Fl. Plants	6019	Haha	<i>Cyanea lanceolata</i>	Endangered
Fl. Plants	1051	Haha	<i>Cyanea lobata</i>	Endangered
Fl. Plants	1182	Haha	<i>Cyanea longiflora</i>	Endangered
Fl. Plants	1103	Haha	<i>Cyanea mannii</i>	Endangered
Fl. Plants	10225	Haha	<i>Cyanea maritae</i>	Endangered
Fl. Plants	6969	Haha	<i>Cyanea marksii</i>	Endangered
Fl. Plants	10226	Haha	<i>Cyanea mauiensis</i>	Endangered
Fl. Plants	685	Haha	<i>Cyanea mceldowneyi</i>	Endangered
Fl. Plants	10227	Haha	<i>Cyanea munroi</i>	Endangered
Fl. Plants	2860	Haha	<i>Cyanea obtusa</i>	Endangered
Fl. Plants	916	‘Aku‘aku	<i>Cyanea platyphylla</i>	Endangered
Fl. Plants	1104	Haha	<i>Cyanea procera</i>	Endangered
Fl. Plants	1636	Haha	<i>Cyanea purpurellifolia</i>	Endangered
Fl. Plants	1105	Haha	<i>Cyanea recta</i>	Threatened

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Fl. Plants	1176	Haha	<i>Cyanea remyi</i>	Endangered
Fl. Plants	537	Haha	<i>Cyanea rivularis</i>	Endangered
Fl. Plants	5956	Popolo	<i>Cyanea solanacea</i>	Endangered
Fl. Plants	687	Haha	<i>Cyanea st.-johnii</i>	Endangered
Fl. Plants	917	Haha	<i>Cyanea stictophylla</i>	Endangered
Fl. Plants	688	Haha	<i>Cyanea superba</i>	Endangered
Fl. Plants	7280	‘Aku	<i>Cyanea tritomantha</i>	Endangered
Fl. Plants	1106	Haha	<i>Cyanea truncata</i>	Endangered
Fl. Plants	1107	Haha	<i>Cyanea undulata</i>	Endangered
Fl. Plants	1131	No common name	<i>Cyperus fauriei</i>	Endangered
Fl. Plants	1407	No common name	<i>Cyperus neokunthianus</i>	Endangered
Fl. Plants	1032	No common name	<i>Cyperus pennatifolius</i>	Endangered
Fl. Plants	1108	Pu‘uka‘a	<i>Cyperus trachysanthos</i>	Endangered
Fl. Plants	1109	Mapele	<i>Cyrtandra cyaneoides</i>	Endangered
Fl. Plants	536	Ha‘iwale	<i>Cyrtandra dentata</i>	Endangered
Fl. Plants	10228	Haiwale	<i>Cyrtandra ferripilosa</i>	Endangered
Fl. Plants	2085	Ha‘iwale	<i>Cyrtandra filipes</i>	Endangered
Fl. Plants	919	Ha‘iwale	<i>Cyrtandra giffardii</i>	Endangered
Fl. Plants	8347	Haiwale	<i>Cyrtandra gracilis</i>	Endangered
Fl. Plants	3020	Ha‘iwale	<i>Cyrtandra hematos</i>	Endangered
Fl. Plants	4201	Ha‘iwale	<i>Cyrtandra kaulantha</i>	Endangered
Fl. Plants	1110	Ha‘iwale	<i>Cyrtandra limahuliensis</i>	Threatened
Fl. Plants	1230	Ha‘iwale	<i>Cyrtandra munroi</i>	Endangered
Fl. Plants	10480	Haiwale	<i>Cyrtandra nanawaleensis</i>	Endangered
Fl. Plants	6679	Ha‘iwale	<i>Cyrtandra oenobarba</i>	Endangered
Fl. Plants	1349	Ha‘iwale	<i>Cyrtandra oxybapha</i>	Endangered
Fl. Plants	9953	Haiwale	<i>Cyrtandra paliku</i>	Endangered
Fl. Plants	690	Ha‘iwale	<i>Cyrtandra polyantha</i>	Endangered
Fl. Plants	2273	Ha‘iwale	<i>Cyrtandra sessilis</i>	Endangered

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Fl. Plants	1111	Ha‘iwale	<i>Cyrtandra tintinnabula</i>	Endangered
Fl. Plants	1112	Ha‘iwale	<i>Cyrtandra viridiflora</i>	Endangered
Fl. Plants	10481	Haiwale	<i>Cyrtandra wagneri</i>	Endangered
Fl. Plants	692	No common name	<i>Delissea rhytidosperma</i>	Endangered
Fl. Plants	693	Oha	<i>Delissea subcordata</i>	Endangered
Fl. Plants	538	No common name	<i>Delissea undulata</i>	Endangered
Fl. Plants	1497	Hala pepe	<i>Dracaena fernaldii</i>	Endangered
Fl. Plants	3737	Hala pepe	<i>Dracaena forbesii</i>	Endangered
Fl. Plants	1141	Hala pepe	<i>Dracaena konaensis</i>	Endangered
Fl. Plants	4858	Na‘ena‘e	<i>Dubautia imbricata</i> ssp. <i>imbricata</i>	Endangered
Fl. Plants	9954	Naenae	<i>Dubautia kalalauensis</i>	Endangered
Fl. Plants	9955	Naenae	<i>Dubautia kenwoodii</i>	Endangered
Fl. Plants	697	Koholapehu	<i>Dubautia latifolia</i>	Endangered
Fl. Plants	1113	Na‘ena‘e	<i>Dubautia pauciflorula</i>	Endangered
Fl. Plants	1114	Na‘ena‘e	<i>Dubautia plantaginea</i> ssp. <i>humilis</i>	Endangered
Fl. Plants	3049	Na‘ena‘e	<i>Dubautia plantaginea</i> ssp. <i>magnifolia</i>	Endangered
Fl. Plants	2154	Na‘ena‘e	<i>Dubautia waialealae</i>	Endangered
Fl. Plants	5358	Tiehm's buckwheat	<i>Eriogonum tiehmii</i>	Endangered
Fl. Plants	1116	Nioi	<i>Eugenia koolauensis</i>	Endangered
Fl. Plants	662	‘Akoko	<i>Euphorbia celastroides</i> var. <i>kaenana</i>	Endangered
Fl. Plants	1223	‘Akoko	<i>Euphorbia deppeana</i>	Endangered
Fl. Plants	1502	‘Akoko	<i>Euphorbia eleanoriae</i>	Endangered
Fl. Plants	664	‘Akoko	<i>Euphorbia halemanui</i>	Endangered
Fl. Plants	1179	‘Akoko	<i>Euphorbia herbstii</i>	Endangered

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Fl. Plants	1094	‘Akoko	<i>Euphorbia kuwaleana</i>	Endangered
Fl. Plants	3871	‘Akoko	<i>Euphorbia remyi</i> var. <i>kauaiensis</i>	Endangered
Fl. Plants	1607	‘Akoko	<i>Euphorbia remyi</i> var. <i>remyi</i>	Endangered
Fl. Plants	1180	‘Akoko	<i>Euphorbia rockii</i>	Endangered
Fl. Plants	938	Heau	<i>Exocarpos luteolus</i>	Endangered
Fl. Plants	6176	No common name	<i>Festuca hawaiiensis</i>	Endangered
Fl. Plants	10235	No common name	<i>Festuca molokaiensis</i>	Endangered
Fl. Plants	1117	Mehamehame	<i>Flueggea neowawraea</i>	Endangered
Fl. Plants	5186	Nanu	<i>Gardenia remyi</i>	Endangered
Fl. Plants	2758	Nohoanu	<i>Geranium hanaense</i>	Endangered
Fl. Plants	4630	Nohoanu	<i>Geranium kauaiense</i>	Endangered
Fl. Plants	939	Nohoanu	<i>Geranium multiflorum</i>	Endangered
Fl. Plants	719	No common name	<i>Gouania hillebrandii</i>	Endangered
Fl. Plants	721	No common name	<i>Gouania vitifolia</i>	Endangered
Fl. Plants	722	Honohono	<i>Haplostachys haplostachya</i>	Endangered
Fl. Plants	942	Higo Chumbo	<i>Harrisia portoricensis</i>	Threatened
Fl. Plants	731	No common name	<i>Hesperomannia arborescens</i>	Endangered
Fl. Plants	732	No common name	<i>Hesperomannia arbuscula</i>	Endangered
Fl. Plants	733	No common name	<i>Hesperomannia lydgatei</i>	Endangered
Fl. Plants	560	Hau kuahiwi	<i>Hibiscadelphus giffardianus</i>	Endangered
Fl. Plants	561	Hau kuahiwi	<i>Hibiscadelphus hualalaiensis</i>	Endangered
Fl. Plants	1177	Hau kuahiwi	<i>Hibiscadelphus woodii</i>	Endangered
Fl. Plants	947	Koki‘o ke‘oke‘o	<i>Hibiscus arnottianus</i> ssp. <i>immaculatus</i>	Endangered

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Fl. Plants	736	(=Native yellow hibiscus) ma‘o hau hele	<i>Hibiscus brackenridgei</i>	Endangered
Fl. Plants	737	Clay's hibiscus	<i>Hibiscus clayi</i>	Endangered
Fl. Plants	738	Koki‘o ke‘oke‘o	<i>Hibiscus waimeae</i> ssp. <i>hannerae</i>	Endangered
Fl. Plants	952	Aupaka	<i>Isodendron hosakae</i>	Endangered
Fl. Plants	564	Aupaka	<i>Isodendron longifolium</i>	Threatened
Fl. Plants	741	Wahine noho kula	<i>Isodendron pyrifolium</i>	Endangered
Fl. Plants	1709	‘Ohe	<i>Joinvillea ascendens</i> <i>ascendens</i>	Endangered
Fl. Plants	724	'Awiwi	<i>Kadua cookiana</i>	Endangered
Fl. Plants	1118	Kopa	<i>Kadua cordata</i> <i>remyi</i>	Endangered
Fl. Plants	1645	Kamapua‘a	<i>Kadua fluviatilis</i>	Endangered
Fl. Plants	10592	No common name	<i>Kadua haupuensis</i>	Endangered
Fl. Plants	727	Pilo	<i>Kadua laxiflora</i>	Endangered
Fl. Plants	728	No common name	<i>Kadua parvula</i>	Endangered
Fl. Plants	729	No common name	<i>Kadua st.-johnii</i>	Endangered
Fl. Plants	1187	Kohe malama malama o Kanaloa	<i>Kanaloa kahoowawensis</i>	Endangered
Fl. Plants	4487	No common name	<i>Keysseria</i> (= <i>Lagenifera</i> ) <i>erici</i>	Endangered
Fl. Plants	8254	No common name	<i>Keysseria</i> (= <i>Lagenifera</i> ) <i>helenae</i>	Endangered
Fl. Plants	745	Koki‘o	<i>Kokia cookei</i>	Endangered
Fl. Plants	746	Koki‘o	<i>Kokia drynarioides</i>	Endangered
Fl. Plants	747	Koki‘o	<i>Kokia kauaiensis</i>	Endangered
Fl. Plants	1693	Hulumoa	<i>Korthalsella degeneri</i>	Endangered
Fl. Plants	954	Kamakahala	<i>Labordia cyrtandrae</i>	Endangered
Fl. Plants	2778	Kamakahala	<i>Labordia helleri</i>	Endangered
Fl. Plants	10599	No common name	<i>Labordia lorenciana</i>	Endangered

Appendix A: Carbaryl “No Effect” Calls and Concurrence with “Not Likely to Adversely Affect” Calls

<b>Taxa group<sup>2</sup></b>	<b>Entity ID</b>	<b>Common name</b>	<b>Scientific name</b>	<b>Status</b>
Fl. Plants	955	Kamakahala	<i>Labordia lydgatei</i>	Endangered
Fl. Plants	3832	Kamakahala	<i>Labordia pumila</i>	Endangered
Fl. Plants	1232	Kamakahala	<i>Labordia tinifolia</i> var. <i>lanaiensis</i>	Endangered
Fl. Plants	1178	Kamakahala	<i>Labordia tinifolia</i> var. <i>wahiawaensis</i>	Endangered
Fl. Plants	567	‘Anaunau	<i>Lepidium arbuscula</i>	Endangered
Fl. Plants	10593	No common name	<i>Lepidium orbiculare</i>	Endangered
Fl. Plants	756	Nehe	<i>Lipochaeta lobata</i> var. <i>leptophylla</i>	Endangered
Fl. Plants	962	Nehe	<i>Lipochaeta micrantha</i>	Endangered
Fl. Plants	757	Nehe	<i>Lipochaeta venosa</i>	Endangered
Fl. Plants	964	Nehe	<i>Lipochaeta waimeaensis</i>	Endangered
Fl. Plants	572	No common name	<i>Lobelia koolauensis</i>	Endangered
Fl. Plants	758	No common name	<i>Lobelia niihauensis</i>	Endangered
Fl. Plants	759	No common name	<i>Lobelia oahuensis</i>	Endangered
Fl. Plants	7170	Lehua makanoe	<i>Lysimachia daphnoides</i>	Endangered
Fl. Plants	968	No common name	<i>Lysimachia filifolia</i>	Endangered
Fl. Plants	9956	No common name	<i>Lysimachia iniki</i>	Endangered
Fl. Plants	1128	No common name	<i>Lysimachia lydgatei</i>	Endangered
Fl. Plants	1129	No common name	<i>Lysimachia maxima</i>	Endangered
Fl. Plants	9957	No common name	<i>Lysimachia pendens</i>	Endangered
Fl. Plants	9958	No common name	<i>Lysimachia scopulensis</i>	Endangered
Fl. Plants	5104	No common name	<i>Lysimachia venosa</i>	Endangered
Fl. Plants	963	Nehe	<i>Melanthera tenuifolia</i>	Endangered
Fl. Plants	1132	Alani	<i>Melicope adscendens</i>	Endangered
Fl. Plants	3472	Alani	<i>Melicope christophersenii</i>	Endangered
Fl. Plants	8303	No common name	<i>Melicope cornuta</i> var. <i>cornuta</i>	Endangered
Fl. Plants	7046	No common name	<i>Melicope cornuta</i> var. <i>decurrens</i>	Endangered
Fl. Plants	1609	Alani	<i>Melicope degeneri</i>	Endangered

Appendix A: Carbaryl “No Effect” Calls and Concurrence with “Not Likely to Adversely Affect” Calls

Taxa group <sup>2</sup>	Entity ID	Common name	Scientific name	Status
Fl. Plants	766	Alani	<i>Melicope haupuensis</i>	Endangered
Fl. Plants	4377	Alani	<i>Melicope hiiakae</i>	Endangered
Fl. Plants	767	Alani	<i>Melicope knudsenii</i>	Endangered
Fl. Plants	3728	Alani	<i>Melicope makahae</i>	Endangered
Fl. Plants	769	Alani	<i>Melicope mucronulata</i>	Endangered
Fl. Plants	770	Alani	<i>Melicope munroi</i>	Endangered
Fl. Plants	771	Alani	<i>Melicope ovalis</i>	Endangered
Fl. Plants	772	Alani	<i>Melicope pallida</i>	Endangered
Fl. Plants	8357	Alani	<i>Melicope paniculata</i>	Endangered
Fl. Plants	3753	Alani	<i>Melicope puberula</i>	Endangered
Fl. Plants	773	Alani	<i>Melicope quadrangularis</i>	Endangered
Fl. Plants	774	Alani	<i>Melicope reflexa</i>	Endangered
Fl. Plants	5709	No common name	<i>Melicope remyi</i>	Endangered
Fl. Plants	3387	Pilo kea lau li‘i	<i>Melicope rostrata</i>	Endangered
Fl. Plants	575	Alani	<i>Melicope saint-johnii</i>	Endangered
Fl. Plants	775	Alani	<i>Melicope zahlbruckneri</i>	Endangered
Fl. Plants	10229	Sea bean	<i>Mucuna persericea</i>	Endangered
Fl. Plants	5763	Kolea	<i>Myrsine fosbergii</i>	Endangered
Fl. Plants	1133	Kolea	<i>Myrsine juddii</i>	Endangered
Fl. Plants	9959	Kolea	<i>Myrsine knudsenii</i>	Endangered
Fl. Plants	1521	Kolea	<i>Myrsine mezii</i>	Endangered
Fl. Plants	2970	Kolea	<i>Myrsine vaccinioides</i>	Endangered
Fl. Plants	1226	No common name	<i>Neraudia angulata</i>	Endangered
Fl. Plants	780	‘Aiea	<i>Nothoctrum breviflorum</i>	Endangered
Fl. Plants	1760	‘Aiea	<i>Nothoctrum latifolium</i>	Endangered
Fl. Plants	781	‘Aiea	<i>Nothoctrum peltatum</i>	Endangered
Fl. Plants	7067	Holei	<i>Ochrosia haleakalae</i>	Endangered
Fl. Plants	1060	Holei	<i>Ochrosia kilaueaensis</i>	Endangered
Fl. Plants	584	Lau ‘ehu	<i>Panicum niihauense</i>	Endangered

Appendix A: Carbaryl “No Effect” Calls and Concurrence with “Not Likely to Adversely Affect” Calls

Taxa group <sup>2</sup>	Entity ID	Common name	Scientific name	Status
Fl. Plants	2683	‘Ala ‘ala wai nui	<i>Peperomia subpetiolata</i>	Endangered
Fl. Plants	795	Makou	<i>Peucedanum sandwicense</i>	Threatened
Fl. Plants	2934	No common name	<i>Phyllostegia bracteata</i>	Endangered
Fl. Plants	3592	No common name	<i>Phyllostegia brevidens</i>	Endangered
Fl. Plants	4533	No common name	<i>Phyllostegia floribunda</i>	Endangered
Fl. Plants	799	No common name	<i>Phyllostegia glabra</i> var. <i>lanaiensis</i>	Endangered
Fl. Plants	10230	No common name	<i>Phyllostegia haliakalae</i>	Endangered
Fl. Plants	4754	No common name	<i>Phyllostegia helleri</i>	Endangered
Fl. Plants	589	No common name	<i>Phyllostegia hirsuta</i>	Endangered
Fl. Plants	7229	No common name	<i>Phyllostegia hispida</i>	Endangered
Fl. Plants	1184	No common name	<i>Phyllostegia kaalaensis</i>	Endangered
Fl. Plants	590	No common name	<i>Phyllostegia knudsenii</i>	Endangered
Fl. Plants	1163	No common name	<i>Phyllostegia mannii</i>	Endangered
Fl. Plants	981	No common name	<i>Phyllostegia mollis</i>	Endangered
Fl. Plants	591	No common name	<i>Phyllostegia parviflora</i>	Endangered
Fl. Plants	1136	Kiponapona	<i>Phyllostegia racemosa</i>	Endangered
Fl. Plants	9960	No common name	<i>Phyllostegia renovans</i>	Endangered
Fl. Plants	7254	No common name	<i>Phyllostegia stachyoides</i>	Endangered
Fl. Plants	1137	No common name	<i>Phyllostegia velutina</i>	Endangered
Fl. Plants	1135	No common name	<i>Phyllostegia waimeae</i>	Endangered
Fl. Plants	1138	No common name	<i>Phyllostegia warshaueri</i>	Endangered
Fl. Plants	1139	No common name	<i>Phyllostegia wawrana</i>	Endangered
Fl. Plants	4740	Hoawa	<i>Pittosporum halophilum</i>	Endangered

Appendix A: Carbaryl “No Effect” Calls and Concurrence with “Not Likely to Adversely Affect” Calls

<b>Taxa group<sup>2</sup></b>	<b>Entity ID</b>	<b>Common name</b>	<b>Scientific name</b>	<b>Status</b>
Fl. Plants	4007	Hoawa	<i>Pittosporum hawaiiense</i>	Endangered
Fl. Plants	3154	Ho‘awa	<i>Pittosporum napaliense</i>	Endangered
Fl. Plants	1140	Kuahiwi laukahi	<i>Plantago hawaiiensis</i>	Endangered
Fl. Plants	800	Kuahiwi laukahi	<i>Plantago princeps</i>	Endangered
Fl. Plants	983	No common name	<i>Platanthera holochila</i>	Endangered
Fl. Plants	986	Mann's bluegrass	<i>Poa mannii</i>	Endangered
Fl. Plants	987	No common name	<i>Poa siphonoglossa</i>	Endangered
Fl. Plants	7886	No common name	<i>Polyscias bisattenuata</i>	Endangered
Fl. Plants	9961	No common name	<i>Polyscias flynnii</i>	Endangered
Fl. Plants	851	‘Ohe‘ohe	<i>Polyscias gymnocarpa</i>	Endangered
Fl. Plants	7367	No common name	<i>Polyscias lydgatei</i>	Endangered
Fl. Plants	778	No common name	<i>Polyscias racemosa</i>	Endangered
Fl. Plants	806	Po‘e	<i>Portulaca sclerocarpa</i>	Endangered
Fl. Plants	3116	Ihi	<i>Portulaca villosa</i>	Endangered
Fl. Plants	10590	Loulu	<i>Pritchardia bakeri</i>	Endangered
Fl. Plants	2727	Loulu	<i>Pritchardia hardyi</i>	Endangered
Fl. Plants	1062	Loulu	<i>Pritchardia kaalae</i>	Endangered
Fl. Plants	3054	Loulu	<i>Pritchardia lanigera</i>	Endangered
Fl. Plants	1142	Loulu	<i>Pritchardia maideniana</i>	Endangered
Fl. Plants	1143	Loulu	<i>Pritchardia napaliensis</i>	Endangered
Fl. Plants	598	Loulu	<i>Pritchardia remota</i>	Endangered
Fl. Plants	1063	Loulu	<i>Pritchardia schattaueri</i>	Endangered
Fl. Plants	1144	Loulu	<i>Pritchardia viscosa</i>	Endangered
Fl. Plants	2619	Kopiko	<i>Psychotria grandiflora</i>	Endangered
Fl. Plants	3084	Kopiko	<i>Psychotria hexandra</i> var. <i>oahuensis</i>	Endangered
Fl. Plants	6536	Kopiko	<i>Psychotria hobdyi</i>	Endangered

Appendix A: Carbaryl “No Effect” Calls and Concurrence with “Not Likely to Adversely Affect” Calls

<b>Taxa group<sup>2</sup></b>	<b>Entity ID</b>	<b>Common name</b>	<b>Scientific name</b>	<b>Status</b>
Fl. Plants	810	Kaulu	<i>Pteralyxia kauaiensis</i>	Endangered
Fl. Plants	2265	Kaulu	<i>Pteralyxia macrocarpa</i>	Endangered
Fl. Plants	2682	Makou	<i>Ranunculus hawaiiensis</i>	Endangered
Fl. Plants	3292	Makou	<i>Ranunculus mauiensis</i>	Endangered
Fl. Plants	814	No common name	<i>Remya kauaiensis</i>	Endangered
Fl. Plants	1083	No common name	<i>Remya montgomeryi</i>	Endangered
Fl. Plants	1146	No common name	<i>Sanicula mariversa</i>	Endangered
Fl. Plants	3784	No common name	<i>Sanicula sandwicensis</i>	Endangered
Fl. Plants	993	Lanai sandalwood (=‘iliahi)	<i>Santalum haleakalae</i> var. <i>lanaiense</i>	Endangered
Fl. Plants	10584	No common name	<i>Santalum involutum</i>	Endangered
Fl. Plants	821	Diamond Head schiedea	<i>Schiedea adamantis</i>	Endangered
Fl. Plants	1065	Ma‘oli‘oli	<i>Schiedea apokremnos</i>	Endangered
Fl. Plants	2404	No common name	<i>Schiedea attenuata</i>	Endangered
Fl. Plants	10483	No common name	<i>Schiedea diffusa</i> ssp. <i>macraei</i>	Endangered
Fl. Plants	10591	No common name	<i>Schiedea diffusa</i> subsp. <i>diffusa</i>	Endangered
Fl. Plants	1067	No common name	<i>Schiedea helleri</i>	Endangered
Fl. Plants	602	No common name	<i>Schiedea hookeri</i>	Endangered
Fl. Plants	10232	No common name	<i>Schiedea jacobii</i>	Endangered
Fl. Plants	822	No common name	<i>Schiedea kaalae</i>	Endangered
Fl. Plants	1147	No common name	<i>Schiedea kauaiensis</i>	Endangered
Fl. Plants	10233	No common name	<i>Schiedea laui</i>	Endangered
Fl. Plants	1084	Kuawawaenohu	<i>Schiedea lychnoides</i>	Endangered
Fl. Plants	1068	No common name	<i>Schiedea lydgatei</i>	Endangered
Fl. Plants	604	No common name	<i>Schiedea membranacea</i>	Endangered
Fl. Plants	1148	No common name	<i>Schiedea nuttallii</i>	Endangered
Fl. Plants	2036	Ma‘oli‘oli	<i>Schiedea pubescens</i>	Endangered

Appendix A: Carbaryl “No Effect” Calls and Concurrence with “Not Likely to Adversely Affect” Calls

Taxa group <sup>2</sup>	Entity ID	Common name	Scientific name	Status
Fl. Plants	1069	No common name	<i>Schiedea spergulina</i> var. <i>leiopoda</i>	Endangered
Fl. Plants	1070	No common name	<i>Schiedea spergulina</i> var. <i>spergulina</i>	Threatened
Fl. Plants	1071	Laulihilihi	<i>Schiedea stellarioides</i>	Endangered
Fl. Plants	606	No common name	<i>Schiedea verticillata</i>	Endangered
Fl. Plants	1075	No common name	<i>Schiedea viscosa</i>	Endangered
Fl. Plants	999	Ohai	<i>Sesbania tomentosa</i>	Endangered
Fl. Plants	1151	‘Anunu	<i>Sicyos albus</i>	Endangered
Fl. Plants	10585	No common name	<i>Sicyos lanceoloideus</i>	Endangered
Fl. Plants	1623	‘Anunu	<i>Sicyos macrophyllus</i>	Endangered
Fl. Plants	1001	No common name	<i>Silene hawaiiensis</i>	Threatened
Fl. Plants	830	No common name	<i>Silene lanceolata</i>	Endangered
Fl. Plants	1152	No common name	<i>Silene perlmanii</i>	Endangered
Fl. Plants	832	Popolo ku mai	<i>Solanum incompletum</i>	Endangered
Fl. Plants	6870	Popolo	<i>Solanum nelsonii</i>	Endangered
Fl. Plants	1154	No common name	<i>Spermolepis hawaiiensis</i>	Endangered
Fl. Plants	838	No common name	<i>Stenogyne angustifolia</i> var. <i>angustifolia</i>	Endangered
Fl. Plants	1155	No common name	<i>Stenogyne bifida</i>	Endangered
Fl. Plants	1156	No common name	<i>Stenogyne campanulata</i>	Endangered
Fl. Plants	6257	No common name	<i>Stenogyne cranwelliae</i>	Endangered
Fl. Plants	4297	No common name	<i>Stenogyne kaalae</i> ssp. <i>sherffii</i>	Endangered
Fl. Plants	846	Pamakani	<i>Tetramolopium capillare</i>	Endangered
Fl. Plants	847	No common name	<i>Tetramolopium filiforme</i>	Endangered
Fl. Plants	848	No common name	<i>Tetramolopium lepidotum</i> ssp. <i>lepidotum</i>	Endangered

Appendix A: Carbaryl “No Effect” Calls and Concurrence with “Not Likely to Adversely Affect” Calls

<b>Taxa group<sup>2</sup></b>	<b>Entity ID</b>	<b>Common name</b>	<b>Scientific name</b>	<b>Status</b>
Fl. Plants	849	No common name	<i>Tetramolopium remyi</i>	Endangered
Fl. Plants	1157	No common name	<i>Trematolobelia singularis</i>	Endangered
Fl. Plants	867	No common name	<i>Viola oahuensis</i>	Endangered
Fl. Plants	7840	No common name	<i>Wikstroemia skottsbergiana</i>	Endangered
Fl. Plants	4238	No common name	<i>Wikstroemia villosa</i>	Endangered
Fl. Plants	868	Dwarf iliau	<i>Wilkesia hobdyi</i>	Endangered
Fl. Plants	1016	No common name	<i>Xylosma crenatum</i>	Endangered
Fl. Plants	1159	A‘e	<i>Zanthoxylum dipetalum</i> var. <i>tomentosum</i>	Endangered
Fl. Plants	7979	A‘e	<i>Zanthoxylum oahuense</i>	Endangered
Insects	1248	Hawaiian picture-wing fly	<i>Drosophila aglaia</i>	Endangered
Insects	1259	Hawaiian picture-wing fly	<i>Drosophila differens</i>	Endangered
Insects	4000	Hawaiian picture-wing fly	<i>Drosophila digressa</i>	Endangered
Insects	1257	Hawaiian picture-wing fly	<i>Drosophila hemipeza</i>	Endangered
Insects	1249	Hawaiian picture-wing fly	<i>Drosophila heteroneura</i>	Endangered
Insects	1250	Hawaiian picture-wing fly	<i>Drosophila montgomeryi</i>	Endangered
Insects	1251	Hawaiian picture-wing fly	<i>Drosophila mulli</i>	Threatened
Insects	1252	Hawaiian picture-wing fly	<i>Drosophila musaphilia</i>	Endangered
Insects	1253	Hawaiian picture-wing fly	<i>Drosophila neoclavisetae</i>	Endangered
Insects	1254	Hawaiian picture-wing fly	<i>Drosophila obatai</i>	Endangered
Insects	1258	Hawaiian picture-wing fly	<i>Drosophila ochrobasis</i>	Endangered
Insects	7261	Hawaiian picture-wing fly	<i>Drosophila sharpi</i>	Endangered

Appendix A: Carbaryl “No Effect” Calls and Concurrence with “Not Likely to Adversely Affect” Calls

<b>Taxa group<sup>2</sup></b>	<b>Entity ID</b>	<b>Common name</b>	<b>Scientific name</b>	<b>Status</b>
Insects	1255	Hawaiian picture-wing fly	<i>Drosophila substenoptera</i>	Endangered
Insects	1256	Hawaiian picture-wing fly	<i>Drosophila tarphytrichia</i>	Endangered
Insects	5580	Anthricinan yellow-faced bee	<i>Hylaeus anthracinus</i>	Endangered
Insects	4413	Assimulans yellow-faced bee	<i>Hylaeus assimulans</i>	Endangered
Insects	7955	Hilaris yellow-faced bee	<i>Hylaeus hilaris</i>	Endangered
Insects	10009	Hawaiian yellow-faced bee	<i>Hylaeus kuakea</i>	Endangered
Insects	10008	Hawaiian yellow-faced bee	<i>Hylaeus mana</i>	Endangered
Insects	4326	Crimson Hawaiian damselfly	<i>Megalagrion leptodemas</i>	Endangered
Insects	6231	Oceanic Hawaiian damselfly	<i>Megalagrion oceanicum</i>	Endangered
Insects	7955	Hilaris yellow-faced bee	<i>Partula langfordi</i>	Endangered
Lichens	11016	South Llano Springs moss	<i>Donrichardsia macroneuron</i>	Endangered
Mammals	8166	Pacific sheath-tailed bat	<i>Emballonura semicaudata rotensis</i>	Endangered
Reptiles	3760	Western pond turtle	<i>Actinemys marmorata</i>	Proposed Threatened
Reptiles	10485	Green sea turtle	<i>Chelonia mydas</i>	Threatened
Reptiles	165	Mona ground iguana	<i>Cyclura stejnegeri</i>	Threatened
Reptiles	2084*	Key ring-necked snake	<i>Diadophis punctatus acricus</i>	Proposed Endangered
Reptiles	164	Mona boa	<i>Epicrates monensis monensis</i>	Threatened
Reptiles	11660*	Pearl River map turtle	<i>Graptemys pearlensis</i>	Proposed Threatened
Reptiles	2238*	Florida Keys mole skink	<i>Plestiodon egregius egregius</i>	Proposed Threatened
Reptiles	5944*	Rim Rock crowned snake	<i>Tantilla oolitica</i>	Proposed Endangered

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Taxa group <sup>2</sup>	Entity ID	Common name	Scientific name	Status
Snails	7731	Langford’s tree snail	<i>Hylaeus hilaris</i>	Endangered
Snails	3876	Newcomb’s tree snail	<i>Newcombia cumingi</i>	Endangered
Snails	1989	Lanai tree snail	<i>Partulina semicarinata</i>	Endangered
Snails	3385	Lanai tree snail	<i>Partulina variabilis</i>	Endangered
Snails	4162	Chupadera springsnail	<i>Pyrgulopsis chupaderae</i>	Endangered
Amphibians	188	Santa Cruz long-toed salamander	<i>Ambystoma macrodactylum croceum</i>	Proposed CH
Birds	8621	Red knot	<i>Calidris canutus rufa</i>	Proposed CH
Birds	9337	Greater sage-grouse	<i>Centrocercus urophasianus</i>	Proposed CH
Birds	150	Oahu elepaio	<i>Chasiempis ibidis</i>	Final CH
Birds	10073	‘I‘iwi	<i>Drepanis coccinea</i>	Proposed CH
Birds	11666	Cactus ferruginous pygmy-owl	<i>Glaucidium brasilianum cactorum</i>	Proposed CH
Birds	79	Palila (honeycreeper)	<i>Loxioides bailleui</i>	Final CH
Birds	6522	Akekee	<i>Loxops caeruleirostris</i>	Final CH
Birds	4136	Akikiki	<i>Oreomystis bairdi</i>	Final CH
Birds	74	‘Akohekohe (crested honeycreeper)	<i>Palmeria dolei</i>	Final CH
Birds	81	Maui parrotbill (Kiwikiu)	<i>Pseudonestor xanthophrys</i>	Final CH
Bivalves	9802	Salina mucket	<i>Potamilus metnecktayi</i>	Proposed CH
Bivalves	8229	Mexican fawnsfoot	<i>Truncilla cognata</i>	Proposed CH
Ferns / Allies	1193	Palai la‘au	<i>Adenophorus periens</i>	Final CH
Ferns / Allies	1197	No common name	<i>Asplenium (=Diellia) dielfalcatum (=falcata)</i>	Final CH
Ferns / Allies	1196	No common name	<i>Asplenium dielirectum</i>	Final CH
Ferns / Allies	7529	No common name	<i>Asplenium dielmannii</i>	Final CH

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Taxa group <sup>2</sup>	Entity ID	Common name	Scientific name	Status
Ferns / Allies	1218	No common name	<i>Asplenium dielpallidum</i>	Final CH
Ferns / Allies	1194	No common name	<i>Asplenium peruvianum</i> var. <i>insulare</i>	Final CH
Ferns / Allies	1211	No common name	<i>Asplenium unisorum</i>	Final CH
Ferns / Allies	1205	Pauoa	<i>Ctenitis squamigera</i>	Final CH
Ferns / Allies	1198	No common name	<i>Diplazium molokaiense</i>	Final CH
Ferns / Allies	9962	No common name	<i>Doryopteris angelica</i>	Final CH
Ferns / Allies	2268	No common name	<i>Doryopteris takeuchii</i>	Final CH
Ferns / Allies	9963	Palapalai aumakua	<i>Dryopteris crinalis</i> var. <i>podosorus</i>	Final CH
Ferns / Allies	1200	Ihi‘ihi	<i>Marsilea villosa</i>	Final CH
Ferns / Allies	1207	Wawae‘iole	<i>Phlegmariurus mannii</i>	Final CH
Ferns / Allies	1208	Wawae‘iole	<i>Phlegmariurus nutans</i>	Final CH
Ferns / Allies	1202	No common name	<i>Pteris lidgatei</i>	Final CH
Fishes	241	Pygmy sculpin	<i>Cottus paulus</i> (=pygmaeus)	Proposed CH
Fishes	4248	Grotto sculpin	<i>Cottus specus</i>	Final CH
Fishes	4318	Barrens topminnow	<i>Fundulus julisia</i>	Proposed CH
Fishes	254	Chihuahua chub	<i>Gila nigrescens</i>	Proposed CH
Fishes	277	Cahaba shiner	<i>Notropis cahabae</i>	Proposed CH
Fishes	298	Goldline darter	<i>Percina aurolineata</i>	Proposed CH
Fishes	4431	Pearl darter	<i>Percina aurora</i>	Final CH
Fl. Plants	618	No common name	<i>Abutilon sandwicense</i>	Final CH
Fl. Plants	497	No common name	<i>Achyranthes mutica</i>	Final CH
Fl. Plants	874	Round-leaved chaff-flower	<i>Achyranthes splendens</i> var. <i>rotundata</i>	Final CH
Fl. Plants	11017	Navasota false foxglove	<i>Agalinis navasotensis</i>	Proposed CH
Fl. Plants	621	Mahoe	<i>Alectryon macrococcus</i>	Final CH

Appendix A: Carbaryl “No Effect” Calls and Concurrence with “Not Likely to Adversely Affect” Calls

Taxa group <sup>2</sup>	Entity ID	Common name	Scientific name	Status
Fl. Plants	499	No common name	<i>Amaranthus brownii</i>	Final CH
Fl. Plants	635	‘Ahinahina	<i>Argyroxiphium sandwicense</i> ssp. <i>macrocephalum</i>	Final CH
Fl. Plants	5233	Blodgett's silverbush	<i>Argythamnia blodgettii</i>	Proposed CH
Fl. Plants	6845	Pa‘iniu	<i>Astelia waialealae</i>	Final CH
Fl. Plants	1090	San Jacinto Valley crownscale	<i>Atriplex coronata</i> var. <i>notatior</i>	Final CH
Fl. Plants	2278	Ko‘oko‘olau	<i>Bidens amplexens</i>	Final CH
Fl. Plants	7617	Ko‘oko‘olau	<i>Bidens campylotheca</i> ssp. <i>pentamera</i>	Final CH
Fl. Plants	8277	Ko‘oko‘olau	<i>Bidens campylotheca</i> ssp. <i>waihoiensis</i>	Final CH
Fl. Plants	8338	Ko‘oko‘olau	<i>Bidens conjuncta</i>	Final CH
Fl. Plants	10479	Ko‘oko‘olau	<i>Bidens hillebrandiana</i> ssp. <i>hillebrandiana</i>	Proposed CH
Fl. Plants	4589	Ko‘oko‘olau	<i>Bidens micrantha</i> D512. <i>ctenophylla</i>	Final CH
Fl. Plants	645	Ko‘oko‘olau	<i>Bidens micrantha</i> ssp. <i>kalealaha</i>	Final CH
Fl. Plants	646	Ko‘oko‘olau	<i>Bidens wiebkei</i>	Final CH
Fl. Plants	648	No common name	<i>Bonamia menziesii</i>	Final CH
Fl. Plants	649	Olulu	<i>Brighamia insignis</i>	Final CH
Fl. Plants	650	Pua ‘ala	<i>Brighamia rockii</i>	Final CH
Fl. Plants	654	‘Awikiwiki	<i>Canavalia molokaiensis</i>	Final CH
Fl. Plants	2118	‘Awikiwiki	<i>Canavalia napaliensis</i>	Final CH
Fl. Plants	7805	‘Awikiwiki	<i>Canavalia pubescens</i>	Final CH
Fl. Plants	7136	Big Pine partridge pea	<i>Chamaecrista lineata keyensis</i>	Proposed CH
Fl. Plants	4253	Pineland sandmat	<i>Chamaesyce deltoidea pinetorum</i>	Proposed CH

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Taxa group <sup>2</sup>	Entity ID	Common name	Scientific name	Status
Fl. Plants	7948	Wedge spurge	<i>Chamaesyce deltoidea serpyllum</i>	Proposed CH
Fl. Plants	3388	Papala	<i>Charpentiera densiflora</i>	Final CH
Fl. Plants	533	‘Oha wai	<i>Clermontia drepanomorpha</i>	Final CH
Fl. Plants	671	‘Oha wai	<i>Clermontia lindseyana</i>	Final CH
Fl. Plants	1097	‘Oha wai	<i>Clermontia oblongifolia</i> ssp. <i>brevipes</i>	Final CH
Fl. Plants	1098	‘Oha wai	<i>Clermontia oblongifolia</i> ssp. <i>mauiensis</i>	Final CH
Fl. Plants	672	‘Oha wai	<i>Clermontia peleana</i>	Final CH
Fl. Plants	1188	‘Oha wai	<i>Clermontia samuelii</i>	Final CH
Fl. Plants	674	Kauila	<i>Colubrina oppositifolia</i>	Final CH
Fl. Plants	1175	Haha	<i>Cyanea acuminata</i>	Final CH
Fl. Plants	1099	Haha	<i>Cyanea asarifolia</i>	Final CH
Fl. Plants	7892	Haha	<i>Cyanea asplenifolia</i>	Final CH
Fl. Plants	3540	Haha	<i>Cyanea calycina</i>	Final CH
Fl. Plants	1185	Haha	<i>Cyanea copelandii</i> ssp. <i>haleakalaensis</i>	Final CH
Fl. Plants	1224	Haha	<i>Cyanea crispa</i>	Final CH
Fl. Plants	9951	Haha	<i>Cyanea dolichopoda</i>	Final CH
Fl. Plants	1101	Haha	<i>Cyanea dunbariae</i>	Final CH
Fl. Plants	10222	Haha	<i>Cyanea duvalliorum</i>	Final CH
Fl. Plants	1278	Haha	<i>Cyanea eleeleensis</i>	Final CH
Fl. Plants	1052	Haha	<i>Cyanea gibsonii</i>	Final CH
Fl. Plants	1102	Haha	<i>Cyanea glabra</i>	Final CH
Fl. Plants	684	Haha	<i>Cyanea grimesiana</i> ssp. <i>grimesiana</i>	Final CH
Fl. Plants	1049	Haha	<i>Cyanea grimesiana</i> ssp. <i>obatae</i>	Final CH
Fl. Plants	1050	Haha	<i>Cyanea hamatiflora</i> ssp. <i>carlsonii</i>	Final CH

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<b>Taxa group<sup>2</sup></b>	<b>Entity ID</b>	<b>Common name</b>	<b>Scientific name</b>	<b>Status</b>
Fl. Plants	1186	Haha	<i>Cyanea hamatiflora</i> <i>ssp. hamatiflora</i>	Final CH
Fl. Plants	10223	Haha nui	<i>Cyanea horrida</i>	Final CH
Fl. Plants	535	Haha	<i>Cyanea humboldtiana</i>	Final CH
Fl. Plants	9952	Haha	<i>Cyanea kolekoleensis</i>	Final CH
Fl. Plants	1181	Haha	<i>Cyanea koolauensis</i>	Final CH
Fl. Plants	4961	Haha	<i>Cyanea kuhihewa</i>	Final CH
Fl. Plants	1968	Haha	<i>Cyanea kunthiana</i>	Final CH
Fl. Plants	6019	Haha	<i>Cyanea lanceolata</i>	Final CH
Fl. Plants	1051	Haha	<i>Cyanea lobata</i>	Final CH
Fl. Plants	1182	Haha	<i>Cyanea longiflora</i>	Final CH
Fl. Plants	1103	Haha	<i>Cyanea mannii</i>	Final CH
Fl. Plants	10225	Haha	<i>Cyanea maritae</i>	Final CH
Fl. Plants	6969	Haha	<i>Cyanea marksii</i>	Proposed CH
Fl. Plants	10226	Haha	<i>Cyanea mauiensis</i>	Final CH
Fl. Plants	685	Haha	<i>Cyanea mceldowneyi</i>	Final CH
Fl. Plants	10227	Haha	<i>Cyanea munroi</i>	Final CH
Fl. Plants	2860	Haha	<i>Cyanea obtusa</i>	Final CH
Fl. Plants	916	‘Aku’aku	<i>Cyanea platyphylla</i>	Final CH
Fl. Plants	1104	Haha	<i>Cyanea procera</i>	Final CH
Fl. Plants	1636	Haha	<i>Cyanea purpurellifolia</i>	Final CH
Fl. Plants	1105	Haha	<i>Cyanea recta</i>	Final CH
Fl. Plants	1176	Haha	<i>Cyanea remyi</i>	Final CH
Fl. Plants	537	Haha	<i>Cyanea rivularis</i>	Final CH
Fl. Plants	5956	Popolo	<i>Cyanea solanacea</i>	Final CH
Fl. Plants	687	Haha	<i>Cyanea st.-johnii</i>	Final CH
Fl. Plants	917	Haha	<i>Cyanea stictophylla</i>	Final CH
Fl. Plants	688	Haha	<i>Cyanea superba</i>	Final CH
Fl. Plants	7280	‘Aku	<i>Cyanea tritomantha</i>	Proposed CH
Fl. Plants	1106	Haha	<i>Cyanea truncata</i>	Final CH
Fl. Plants	1107	Haha	<i>Cyanea undulata</i>	Final CH
Fl. Plants	1131	No common name	<i>Cyperus fauriei</i>	Final CH
Fl. Plants	1032	No common name	<i>Cyperus pennatifolius</i>	Final CH

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Taxa group <sup>2</sup>	Entity ID	Common name	Scientific name	Status
Fl. Plants	1108	Pu‘uka‘a	<i>Cyperus trachysanthos</i>	Final CH
Fl. Plants	1109	Mapele	<i>Cyrtandra cyaneoides</i>	Final CH
Fl. Plants	536	Ha‘iwale	<i>Cyrtandra dentata</i>	Final CH
Fl. Plants	10228	haiwale	<i>Cyrtandra ferripilosa</i>	Final CH
Fl. Plants	2085	Ha‘iwale	<i>Cyrtandra filipes</i>	Final CH
Fl. Plants	919	Ha‘iwale	<i>Cyrtandra giffardii</i>	Final CH
Fl. Plants	8347	Ha‘iwale	<i>Cyrtandra gracilis</i>	Final CH
Fl. Plants	4201	Ha‘iwale	<i>Cyrtandra kaulantha</i>	Final CH
Fl. Plants	1110	Ha‘iwale	<i>Cyrtandra limahuliensis</i>	Final CH
Fl. Plants	1230	Ha‘iwale	<i>Cyrtandra munroi</i>	Final CH
Fl. Plants	10480	Ha‘iwale	<i>Cyrtandra nanawaleensis</i>	Proposed CH
Fl. Plants	6679	Ha‘iwale	<i>Cyrtandra oenobarba</i>	Final CH
Fl. Plants	1349	Ha‘iwale	<i>Cyrtandra oxybapha</i>	Final CH
Fl. Plants	9953	Ha‘iwale	<i>Cyrtandra paliku</i>	Final CH
Fl. Plants	690	Ha‘iwale	<i>Cyrtandra polyantha</i>	Final CH
Fl. Plants	2273	Ha‘iwale	<i>Cyrtandra sessilis</i>	Final CH
Fl. Plants	1111	Ha‘iwale	<i>Cyrtandra tintinnabula</i>	Final CH
Fl. Plants	1112	Ha‘iwale	<i>Cyrtandra viridiflora</i>	Final CH
Fl. Plants	10481	Ha‘iwale	<i>Cyrtandra wagneri</i>	Proposed CH
Fl. Plants	5273	Florida prairie-clover	<i>Dalea carthagenensis floridana</i>	Proposed CH
Fl. Plants	692	No common name	<i>Delissea rhytidosperma</i>	Final CH
Fl. Plants	693	Oha	<i>Delissea subcordata</i>	Final CH
Fl. Plants	538	No common name	<i>Delissea undulata</i>	Final CH
Fl. Plants	4712	Florida pineland crabgrass	<i>Digitaria pauciflora</i>	Proposed CH
Fl. Plants	1497	Hala pepe	<i>Dracaena fernaldii</i>	Final CH
Fl. Plants	3737	Hala pepe	<i>Dracaena forbesii</i>	Final CH

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<b>Taxa group<sup>2</sup></b>	<b>Entity ID</b>	<b>Common name</b>	<b>Scientific name</b>	<b>Status</b>
Fl. Plants	1141	Hala pepe	<i>Dracaena konaensis</i>	Final CH
Fl. Plants	4858	Na‘ena‘e	<i>Dubautia imbricata</i> <i>ssp. imbricata</i>	Final CH
Fl. Plants	9954	Naenae	<i>Dubautia kalalauensis</i>	Final CH
Fl. Plants	9955	Naenae	<i>Dubautia kenwoodii</i>	Final CH
Fl. Plants	697	Koholapehu	<i>Dubautia latifolia</i>	Final CH
Fl. Plants	1113	Na‘ena‘e	<i>Dubautia pauciflorula</i>	Final CH
Fl. Plants	1114	Na‘ena‘e	<i>Dubautia plantaginea</i> ssp. <i>humilis</i>	Final CH
Fl. Plants	3049	Na‘ena‘e	<i>Dubautia plantaginea</i> ssp. <i>magnifolia</i>	Final CH
Fl. Plants	1116	Nioi	<i>Eugenia koolauensis</i>	Final CH
Fl. Plants	662	‘Akoko	<i>Euphorbia celastroides</i> var. <i>kaenana</i>	Final CH
Fl. Plants	1223	‘Akoko	<i>Euphorbia deppeana</i>	Final CH
Fl. Plants	1502	‘Akoko	<i>Euphorbia eleanoriae</i>	Final CH
Fl. Plants	664	‘Akoko	<i>Euphorbia halemanui</i>	Final CH
Fl. Plants	1179	‘Akoko	<i>Euphorbia herbstii</i>	Final CH
Fl. Plants	1094	‘Akoko	<i>Euphorbia kuwaleana</i>	Final CH
Fl. Plants	3871	‘Akoko	<i>Euphorbia remyi</i> var. <i>kauaiensis</i>	Final CH
Fl. Plants	1607	‘Akoko	<i>Euphorbia remyi</i> var. <i>remyi</i>	Final CH
Fl. Plants	1180	‘Akoko	<i>Euphorbia rockii</i>	Final CH
Fl. Plants	938	Heau	<i>Exocarpos luteolus</i>	Final CH
Fl. Plants	10235	No common name	<i>Festuca molokaiensis</i>	Final CH
Fl. Plants	1117	Mehamehame	<i>Flueggea neowawraea</i>	Final CH
Fl. Plants	2758	Nohoanu	<i>Geranium hanaense</i>	Final CH

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<b>Taxa group<sup>2</sup></b>	<b>Entity ID</b>	<b>Common name</b>	<b>Scientific name</b>	<b>Status</b>
Fl. Plants	4630	Nohoanu	<i>Geranium kauaiense</i>	Final CH
Fl. Plants	939	Nohoanu	<i>Geranium multiflorum</i>	Final CH
Fl. Plants	719	No common name	<i>Gouania hillebrandii</i>	Final CH
Fl. Plants	721	No common name	<i>Gouania vitifolia</i>	Final CH
Fl. Plants	5797	Bartram's stonecrop	<i>Graptopetalum bartramii</i>	Proposed CH
Fl. Plants	731	No common name	<i>Hesperomannia arborescens</i>	Final CH
Fl. Plants	732	No common name	<i>Hesperomannia arbuscula</i>	Final CH
Fl. Plants	733	No common name	<i>Hesperomannia lydgatei</i>	Final CH
Fl. Plants	560	Hau kuahiwi	<i>Hibiscadelphus giffardianus</i>	Final CH
Fl. Plants	561	Hau kuahiwi	<i>Hibiscadelphus hualalaiensis</i>	Final CH
Fl. Plants	1177	Hau kuahiwi	<i>Hibiscadelphus woodii</i>	Final CH
Fl. Plants	947	Koki‘o ke‘oke‘o	<i>Hibiscus arnottianus</i> ssp. <i>immaculatus</i>	Final CH
Fl. Plants	736	Ma‘o hau hele (=Native yellow hibiscus)	<i>Hibiscus brackenridgei</i>	Final CH
Fl. Plants	737	Clay's hibiscus	<i>Hibiscus clayi</i>	Final CH
Fl. Plants	738	Koki‘o ke‘oke‘o	<i>Hibiscus waimeae</i> ssp. <i>hannerae</i>	Final CH
Fl. Plants	952	Aupaka	<i>Isodendrion hosakae</i>	Final CH
Fl. Plants	564	Aupaka	<i>Isodendrion longifolium</i>	Final CH
Fl. Plants	741	Wahine noho kula	<i>Isodendrion pyrifolium</i>	Final CH
Fl. Plants	724	'Awiwi	<i>Kadua cookiana</i>	Final CH
Fl. Plants	727	Pilo	<i>Kadua laxiflora</i>	Final CH
Fl. Plants	728	No common name	<i>Kadua parvula</i>	Final CH
Fl. Plants	729	No common name	<i>Kadua st.-johnii</i>	Final CH
Fl. Plants	1187	Kohe malama malama o Kanaloa	<i>Kanaloa kahoolawensis</i>	Final CH

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Taxa group <sup>2</sup>	Entity ID	Common name	Scientific name	Status
Fl. Plants	4487	No common name	<i>Keysseria</i> (= <i>Lagenifera</i> ) <i>erici</i>	Final CH
Fl. Plants	8254	No common name	<i>Keysseria</i> (= <i>Lagenifera</i> ) <i>helenae</i>	Final CH
Fl. Plants	745	Koki‘o	<i>Kokia cookei</i>	Final CH
Fl. Plants	746	Koki‘o	<i>Kokia drynarioides</i>	Final CH
Fl. Plants	747	Koki‘o	<i>Kokia kauaiensis</i>	Final CH
Fl. Plants	1693	Hulumoa	<i>Korthalsella</i> <i>degeneri</i>	Final CH
Fl. Plants	954	Kamakahala	<i>Labordia</i> <i>cyrtandrae</i>	Final CH
Fl. Plants	2778	Kamakahala	<i>Labordia helleri</i>	Final CH
Fl. Plants	955	Kamakahala	<i>Labordia lydgatei</i>	Final CH
Fl. Plants	3832	Kamakahala	<i>Labordia pumila</i>	Final CH
Fl. Plants	1232	Kamakahala	<i>Labordia tinifolia</i> var. <i>lanaiensis</i>	Final CH
Fl. Plants	1178	Kamakahala	<i>Labordia tinifolia</i> var. <i>wahiawaensis</i>	Final CH
Fl. Plants	567	‘Anaunau	<i>Lepidium arbuscula</i>	Final CH
Fl. Plants	1535	Sand flax	<i>Linum arenicola</i>	Proposed CH
Fl. Plants	756	Nehe	<i>Lipochaeta lobata</i> var. <i>leptophylla</i>	Final CH
Fl. Plants	962	Nehe	<i>Lipochaeta</i> <i>micrantha</i>	Final CH
Fl. Plants	964	Nehe	<i>Lipochaeta</i> <i>waimeaensis</i>	Final CH
Fl. Plants	572	No common name	<i>Lobelia koolauensis</i>	Final CH
Fl. Plants	758	No common name	<i>Lobelia niihauensis</i>	Final CH
Fl. Plants	759	No common name	<i>Lobelia oahuensis</i>	Final CH
Fl. Plants	3295	Lassics lupine	<i>Lupinus constancei</i>	Final CH
Fl. Plants	7170	Lehua makanoe	<i>Lysimachia</i> <i>daphnoides</i>	Final CH
Fl. Plants	968	No common name	<i>Lysimachia filifolia</i>	Final CH
Fl. Plants	9956	No common name	<i>Lysimachia iniki</i>	Final CH
Fl. Plants	1128	No common name	<i>Lysimachia lydgatei</i>	Final CH
Fl. Plants	1129	No common name	<i>Lysimachia maxima</i>	Final CH
Fl. Plants	9957	No common name	<i>Lysimachia pendens</i>	Final CH

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Taxa group <sup>2</sup>	Entity ID	Common name	Scientific name	Status
Fl. Plants	9958	No common name	<i>Lysimachia scopulensis</i>	Final CH
Fl. Plants	5104	No common name	<i>Lysimachia venosa</i>	Final CH
Fl. Plants	963	Nehe	<i>Melanthera tenuifolia</i>	Final CH
Fl. Plants	1132	Alani	<i>Melicope adscendens</i>	Final CH
Fl. Plants	3472	Alani	<i>Melicope christophersenii</i>	Final CH
Fl. Plants	8303	No common name	<i>Melicope cornuta</i> var. <i>cornuta</i>	Final CH
Fl. Plants	7046	No common name	<i>Melicope cornuta</i> var. <i>decurrens</i>	Final CH
Fl. Plants	1609	Alani	<i>Melicope degeneri</i>	Final CH
Fl. Plants	766	Alani	<i>Melicope haupuensis</i>	Final CH
Fl. Plants	4377	Alani	<i>Melicope hiiakae</i>	Final CH
Fl. Plants	767	Alani	<i>Melicope knudsenii</i>	Final CH
Fl. Plants	3728	Alani	<i>Melicope makahae</i>	Final CH
Fl. Plants	769	Alani	<i>Melicope mucronulata</i>	Final CH
Fl. Plants	770	Alani	<i>Melicope munroi</i>	Final CH
Fl. Plants	771	Alani	<i>Melicope ovalis</i>	Final CH
Fl. Plants	772	Alani	<i>Melicope pallida</i>	Final CH
Fl. Plants	8357	Alani	<i>Melicope paniculata</i>	Final CH
Fl. Plants	3753	Alani	<i>Melicope puberula</i>	Final CH
Fl. Plants	774	Alani	<i>Melicope reflexa</i>	Final CH
Fl. Plants	5709	No common name	<i>Melicope remyi</i>	Proposed CH
Fl. Plants	3387	Pilo kea lau li‘i	<i>Melicope rostrata</i>	Final CH
Fl. Plants	575	Alani	<i>Melicope saint-johnii</i>	Final CH
Fl. Plants	775	Alani	<i>Melicope zahlbruckneri</i>	Final CH
Fl. Plants	10229	Sea bean	<i>Mucuna persericea</i>	Final CH
Fl. Plants	1133	Kolea	<i>Myrsine juddii</i>	Final CH
Fl. Plants	9959	Kolea	<i>Myrsine knudsenii</i>	Final CH
Fl. Plants	1521	Kolea	<i>Myrsine mezii</i>	Final CH

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<b>Taxa group<sup>2</sup></b>	<b>Entity ID</b>	<b>Common name</b>	<b>Scientific name</b>	<b>Status</b>
Fl. Plants	2970	Kolea	<i>Myrsine vaccinioides</i>	Final CH
Fl. Plants	1226	No common name	<i>Neraudia angulata</i>	Final CH
Fl. Plants	780	‘Aiea	<i>Nothocestrum breviflorum</i>	Final CH
Fl. Plants	781	‘Aiea	<i>Nothocestrum peltatum</i>	Final CH
Fl. Plants	788	Carter's panicgrass	<i>Panicum fauriei</i> var. <i>carteri</i>	Proposed CH
Fl. Plants	584	Lau ‘ehu	<i>Panicum niihauense</i>	Final CH
Fl. Plants	2683	‘Ala ‘ala wai nui	<i>Peperomia subpetiolata</i>	Final CH
Fl. Plants	795	Makou	<i>Peucedanum sandwicense</i>	Final CH
Fl. Plants	2934	No common name	<i>Phyllostegia bracteata</i>	Final CH
Fl. Plants	4533	No common name	<i>Phyllostegia floribunda</i>	Proposed CH
Fl. Plants	10230	No common name	<i>Phyllostegia haliakalae</i>	Final CH
Fl. Plants	589	No common name	<i>Phyllostegia hirsuta</i>	Final CH
Fl. Plants	7229	No common name	<i>Phyllostegia hispida</i>	Final CH
Fl. Plants	1184	No common name	<i>Phyllostegia kaalaensis</i>	Final CH
Fl. Plants	590	No common name	<i>Phyllostegia knudsenii</i>	Final CH
Fl. Plants	1163	No common name	<i>Phyllostegia mannii</i>	Final CH
Fl. Plants	981	No common name	<i>Phyllostegia mollis</i>	Final CH
Fl. Plants	591	No common name	<i>Phyllostegia parviflora</i>	Final CH
Fl. Plants	1136	Kiponapona	<i>Phyllostegia racemosa</i>	Final CH
Fl. Plants	9960	No common name	<i>Phyllostegia renovans</i>	Final CH
Fl. Plants	1137	No common name	<i>Phyllostegia velutina</i>	Final CH
Fl. Plants	1135	No common name	<i>Phyllostegia waimeae</i>	Final CH
Fl. Plants	1138	No common name	<i>Phyllostegia warshaueri</i>	Final CH

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Taxa group <sup>2</sup>	Entity ID	Common name	Scientific name	Status
Fl. Plants	1139	No common name	<i>Phyllostegia wawrana</i>	Final CH
Fl. Plants	4740	Ho‘awa	<i>Pittosporum halophilum</i>	Final CH
Fl. Plants	4007	Ho‘awa	<i>Pittosporum hawaiiense</i>	Proposed CH
Fl. Plants	3154	Ho‘awa	<i>Pittosporum napaliense</i>	Final CH
Fl. Plants	1140	Kuahiwi laukahi	<i>Plantago hawaiiensis</i>	Final CH
Fl. Plants	800	Kuahiwi laukahi	<i>Plantago princeps</i>	Final CH
Fl. Plants	983	No common name	<i>Platanthera holochila</i>	Final CH
Fl. Plants	986	Mann's bluegrass	<i>Poa mannii</i>	Final CH
Fl. Plants	801	Hawaiian bluegrass	<i>Poa sandvicensis</i>	Final CH
Fl. Plants	987	No common name	<i>Poa siphonoglossa</i>	Final CH
Fl. Plants	7886	No common name	<i>Polyscias bisattenuata</i>	Final CH
Fl. Plants	9961	No common name	<i>Polyscias flynnii</i>	Final CH
Fl. Plants	851	‘Ohe‘ohe	<i>Polyscias gymnocarpa</i>	Final CH
Fl. Plants	7367	No common name	<i>Polyscias lydgatei</i>	Final CH
Fl. Plants	778	No common name	<i>Polyscias racemosa</i>	Final CH
Fl. Plants	806	Po‘e	<i>Portulaca sclerocarpa</i>	Final CH
Fl. Plants	1143	Loulu	<i>Pritchardia napaliensis</i>	Final CH
Fl. Plants	598	Loulu	<i>Pritchardia remota</i>	Final CH
Fl. Plants	1144	Loulu	<i>Pritchardia viscosa</i>	Final CH
Fl. Plants	2619	Kopiko	<i>Psychotria grandiflora</i>	Final CH
Fl. Plants	3084	Kopiko	<i>Psychotria hexandra</i> var. <i>oahuensis</i>	Final CH
Fl. Plants	6536	Kopiko	<i>Psychotria hobdyi</i>	Final CH
Fl. Plants	810	Kaulu	<i>Pteralyxia kauaiensis</i>	Final CH
Fl. Plants	2265	Kaulu	<i>Pteralyxia macrocarpa</i>	Final CH
Fl. Plants	814	No common name	<i>Remya kauaiensis</i>	Final CH

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Taxa group <sup>2</sup>	Entity ID	Common name	Scientific name	Status
Fl. Plants	1083	No common name	<i>Remya montgomeryi</i>	Final CH
Fl. Plants	1146	No common name	<i>Sanicula mariversa</i>	Final CH
Fl. Plants	993	Lanai sandalwood (=‘iliahi)	<i>Santalum haleakalae</i> var. <i>lanaiense</i>	Final CH
Fl. Plants	1065	Ma‘oli‘oli	<i>Schiedea apokremnos</i>	Final CH
Fl. Plants	2404	No common name	<i>Schiedea attenuata</i>	Final CH
Fl. Plants	10483	No common name	<i>Schiedea diffusa</i> ssp. <i>macraei</i>	Proposed CH
Fl. Plants	1067	No common name	<i>Schiedea helleri</i>	Final CH
Fl. Plants	602	No common name	<i>Schiedea hookeri</i>	Final CH
Fl. Plants	10232	No common name	<i>Schiedea jacobii</i>	Final CH
Fl. Plants	822	No common name	<i>Schiedea kaalae</i>	Final CH
Fl. Plants	1147	No common name	<i>Schiedea kauaiensis</i>	Final CH
Fl. Plants	10233	No common name	<i>Schiedea laui</i>	Final CH
Fl. Plants	1084	Kuawawaenohu	<i>Schiedea lychnoides</i>	Final CH
Fl. Plants	1068	No common name	<i>Schiedea lydgatei</i>	Final CH
Fl. Plants	604	No common name	<i>Schiedea membranacea</i>	Final CH
Fl. Plants	1148	No common name	<i>Schiedea nuttallii</i>	Final CH
Fl. Plants	1069	No common name	<i>Schiedea spergulina</i> var. <i>leiopoda</i>	Final CH
Fl. Plants	1070	No common name	<i>Schiedea spergulina</i> var. <i>spergulina</i>	Final CH
Fl. Plants	1071	Laulihilihi	<i>Schiedea stellarioides</i>	Final CH
Fl. Plants	606	No common name	<i>Schiedea verticillata</i>	Final CH
Fl. Plants	1075	No common name	<i>Schiedea viscosa</i>	Final CH
Fl. Plants	607	Shrubby reed-mustard	<i>Schoenocrambe suffrutescens</i>	Proposed CH
Fl. Plants	999	Ohai	<i>Sesbania tomentosa</i>	Final CH
Fl. Plants	1151	‘Anunu	<i>Sicyos albus</i>	Final CH
Fl. Plants	4395	Everglades bully	<i>Sideroxylon reclinatum</i> ssp. <i>austrofloridense</i>	Proposed CH
Fl. Plants	1001	No common name	<i>Silene hawaiiensis</i>	Final CH

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Taxa group <sup>2</sup>	Entity ID	Common name	Scientific name	Status
Fl. Plants	830	No common name	<i>Silene lanceolata</i>	Final CH
Fl. Plants	1152	No common name	<i>Silene perlmanii</i>	Final CH
Fl. Plants	613	Spalding's catchfly	<i>Silene spaldingii</i>	Proposed CH
Fl. Plants	832	Popolo ku mai	<i>Solanum incompletum</i>	Final CH
Fl. Plants	1154	No common name	<i>Spermolepis hawaiiensis</i>	Final CH
Fl. Plants	1155	No common name	<i>Stenogyne bifida</i>	Final CH
Fl. Plants	1156	No common name	<i>Stenogyne campanulata</i>	Final CH
Fl. Plants	6257	No common name	<i>Stenogyne cranwelliae</i>	Proposed CH
Fl. Plants	846	Pamakani	<i>Tetramolopium capillare</i>	Final CH
Fl. Plants	847	No common name	<i>Tetramolopium filiforme</i>	Final CH
Fl. Plants	848	No common name	<i>Tetramolopium lepidotum</i> ssp. <i>lepidotum</i>	Final CH
Fl. Plants	849	No common name	<i>Tetramolopium remyi</i>	Final CH
Fl. Plants	1157	No common name	<i>Trematolobelia singularis</i>	Final CH
Fl. Plants	864	No common name	<i>Viola helenae</i>	Final CH
Fl. Plants	865	Nani wai‘ale‘ale	<i>Viola kauaiensis</i> var. <i>wahiawaensis</i>	Final CH
Fl. Plants	867	No common name	<i>Viola oahuensis</i>	Final CH
Fl. Plants	4238	No common name	<i>Wikstroemia villosa</i>	Final CH
Fl. Plants	868	Dwarf iliau	<i>Wilkesia hobdyi</i>	Final CH
Fl. Plants	1016	No common name	<i>Xylosma crenatum</i>	Final CH
Fl. Plants	1159	A‘e	<i>Zanthoxylum dipetalum</i> var. <i>tomentosum</i>	Final CH
Fl. Plants	7979	A‘e	<i>Zanthoxylum oahuense</i>	Final CH
Insects	421	Lange's metalmark butterfly	<i>Apodemia mormo langei</i>	Proposed CH
Insects	427	San Bruno elfin butterfly	<i>Callophrys mossii bayensis</i>	Proposed CH
Insects	1248	Hawaiian picture-wing fly	<i>Drosophila aglaia</i>	Final CH

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<b>Taxa group<sup>2</sup></b>	<b>Entity ID</b>	<b>Common name</b>	<b>Scientific name</b>	<b>Status</b>
Insects	1259	Hawaiian picture-wing fly	<i>Drosophila differens</i>	Final CH
Insects	1257	Hawaiian picture-wing fly	<i>Drosophila hemipeza</i>	Final CH
Insects	1249	Hawaiian picture-wing fly	<i>Drosophila heteroneura</i>	Final CH
Insects	1250	Hawaiian picture-wing fly	<i>Drosophila montgomeryi</i>	Final CH
Insects	1251	Hawaiian picture-wing fly	<i>Drosophila mulli</i>	Final CH
Insects	1252	Hawaiian picture-wing fly	<i>Drosophila musaphilia</i>	Final CH
Insects	1253	Hawaiian picture-wing fly	<i>Drosophila neoclavisetae</i>	Final CH
Insects	1254	Hawaiian picture-wing fly	<i>Drosophila obatai</i>	Final CH
Insects	1258	Hawaiian picture-wing fly	<i>Drosophila ochrobasis</i>	Final CH
Insects	7261	Hawaiian picture-wing fly	<i>Drosophila sharpi</i>	Final CH
Insects	1255	Hawaiian picture-wing fly	<i>Drosophila substenoptera</i>	Final CH
Insects	1256	Hawaiian picture-wing fly	<i>Drosophila tarphytrichia</i>	Final CH
Insects	419	El Segundo blue butterfly	<i>Euphilotes battoides allyni</i>	Proposed CH
Insects	428	Smith's blue butterfly	<i>Euphilotes enoptes smithi</i>	Proposed CH
Insects	433	Kern primrose sphinx moth	<i>Euproserpinus euterpe</i>	Proposed CH
Insects	434	Pawnee montane skipper	<i>Hesperia leonardus montana</i>	Proposed CH
Insects	423	Mission blue butterfly	<i>Icaricia icarioides missionensis</i>	Proposed CH
Insects	422	Lotis blue butterfly	<i>Lycaeides argyrognomon lotis</i>	Proposed CH
Insects	420	Karner blue butterfly	<i>Lycaeides melissa samuelis</i>	Proposed CH
Insects	4326	Crimson Hawaiian damselfly	<i>Megalagrion leptodemas</i>	Final CH
Insects	6231	Oceanic Hawaiian damselfly	<i>Megalagrion oceanicum</i>	Final CH
Insects	430	Callippe silverspot butterfly	<i>Speyeria callippe callippe</i>	Proposed CH

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Taxa group <sup>2</sup>	Entity ID	Common name	Scientific name	Status
Lichens	11016	South Llano Springs moss	<i>Donrichardsia macroneuron</i>	Final CH
Mammals	11	Gray wolf	<i>Canis lupus</i>	Final CH
Mammals	31	Key Largo cotton mouse	<i>Peromyscus gossypinus allapaticola</i>	Proposed CH
Mammals	4228	Penasco least chipmunk	<i>Tamias minimus atristriatus</i>	Proposed CH
Mammals	3194	Roy Prairie pocket gopher	<i>Thomomys mazama glacialis</i>	Final CH
Mammals	1237	Santa Catalina Island fox	<i>Urocyon littoralis catalinae</i>	Final CH
Mammals	2	Grizzly bear	<i>Ursus arctos horribilis</i>	Proposed CH
Reptiles	10485	Green sea turtle	<i>Chelonia mydas</i>	Proposed CH
Reptiles	165	Mona ground iguana	<i>Cyclura stejnegeri</i>	Final CH
Reptiles	164	Mona boa	<i>Epicrates monensis monensis</i>	Final CH
Reptiles	153	Hawksbill sea turtle	<i>Eretmochelys imbricata</i>	Final CH
Reptiles	6620	Sonoyta mud turtle	<i>Kinosternon sonoriense longifemorale</i>	Final CH
Reptiles	155	Kemp's ridley sea turtle	<i>Lepidochelys kempii</i>	Proposed CH
Snails	3876	Newcomb's tree snail	<i>Newcombia cumingi</i>	Final CH

## Concurrence

For the proposed action, the EPA also made “may affect, not likely to adversely affect” determinations for 66 threatened, endangered, and proposed species entities and 20 designated and proposed critical habitats under Service jurisdiction (see Tables 3-8 below).

“Not likely to adversely affect” determinations were based on conclusions of discountable or insignificant effects. Insignificant effects relate to the size of the impact and should never reach the scale where take of a listed species or an impact to the conservation value of a critical habitat PBF is expected. For some species and critical habitat elements, carbaryl pesticide exposure is expected to be so small in magnitude that the effects will not be noticeable or measurable. For example, some species do not have measurable adverse reactions to direct or indirect insecticide exposure, nor will such an exposure cause a significant reduction in those species’ food resources, shelter availability, or other species on which they depend (e.g., host species, pollinators). Discountable exposure applies to listed species and critical habitat PBFs that is

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extremely unlikely to occur. For example, exposure to carbaryl for some species within the action area is extremely unlikely based on their specific habitat requirements that will preclude exposure based on proximity to application areas or other considerations (e.g., species that only occur on mountain peaks, species that only grow on vertical cliff surfaces, or species with specific microhabitat conditions that do not occur near spray drift or runoff areas).

For species considered extinct or extirpated from the United States, in most cases, exposure was either not expected (if presumed extinct) or extremely unlikely to occur (if presumed extirpated).

### EFFECTS BY TAXA GROUPS

In their BE, EPA determined that their proposed action may affect, but is “not likely to adversely affect” 13 birds, 20 invertebrates, eight mammals, 13 reptiles, and 12 plant species under Service jurisdiction. They also made “not likely to adversely affect” determinations for designated or proposed critical habitats for two birds, ten invertebrates, one mammal, four reptiles, and three plants. We concur with most of EPA’s “not likely to adversely affect” determinations as listed in Appendix 4-1 in their biological evaluation (USEPA, 2021). We describe our rationale for concurrence and need for further effects analysis, when applicable, in the sections below. For species that we felt needed further effects analysis, we analyzed them further in our Opinion.

#### Birds

The EPA made 13 “not likely to adversely affect” determinations for bird species entities (Table 5): marbled murrelet (*Brachyramphus marmoratus*), ivory-billed woodpecker (*Campephilus principalis*), Great Lakes piping plover (*Charadrius melodus*), California condor (*Gymnogyps californianus*; two entities), Mao (= maomao) (honeyeater) (*Gymnomyza samoensis*), band-rumped storm-petrel (*Oceanodroma castro*), short-tailed albatross (*Phoebastria* (= *Diomedea*) *albatrus*), black-capped petrel (*Pterodroma hasitata*), Hawaiian petrel (*Pterodroma sandwichensis*), Newell’s Townsend’s shearwater (*Puffinus auricularis newelli*), and roseate tern (*Sterna dougallii dougallii*; two entities). The EPA made “not likely to adversely affect” determinations for two bird critical habitats: marbled murrelet and California condor. We concur with their determinations except for the Great Lakes piping plover, which we discuss further in our Opinion.

The following ten birds were delisted on October 17, 2023 (USFWS, 2023) and removed from our concurrence and consultation: Bachman’s warbler (*Vermivora bachmanii*), bridled white-eye (*Zosterops conspicillatus conspicillatus*), Kauai 'o'o (honeyeater) (*Moho braccatus*), Kauai akialoa (honeycreeper) (*Akialoa stejnegeri*), Kauai nukupuu (*Hemignathus hanapepe*), large Kauai (=kamao) thrush (*Myadestes myadestinus*), Maui akepa (*Loxops ochraceus*), Maui nukupuu (*Hemignathus affinis*), Molokai creeper (*Paroreomyza flammea*), and po'ouli (honeycreeper) (*Melamprosops phaeosoma*). In addition, the San Clemente Bell’s [sage] sparrow (*Amphispiza belli clementeae*) was delisted on January 25, 2023, and we removed it from our consultation (USFWS, 2023).

**Table 2. “Not likely to adversely affect” determinations for listed bird species and critical habitats. For one species (Entity ID 130, designated with an asterisk below), we did not**

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**concur with EPA’s “not likely to adversely affect” determinations and we analyzed it further in our Opinion.**

Entity ID	Common name	Scientific name	Species or critical habitat (CH) status
143	Marbled murrelet	<i>Brachyramphus marmoratus</i>	Threatened
95	Ivory-billed woodpecker	<i>Campephilus principalis</i>	Endangered
130*	Piping plover (Great Lakes)	<i>Charadrius melodus</i>	Endangered
66	California condor	<i>Gymnogyps californianus</i>	Endangered
1737	California condor	<i>Gymnogyps californianus</i>	EXPN <sup>4</sup>
10582	Mao (= maomao) (honeyeater)	<i>Gymnomyza samoensis</i>	Endangered
2859	Band-rumped storm-petrel	<i>Oceanodroma castro</i>	Endangered
88	Short-tailed albatross	<i>Phoebastria (=Diomedea) albatrus</i>	Endangered
3492	Black-capped petrel	<i>Pterodroma hasitata</i>	Endangered
82	Hawaiian petrel	<i>Pterodroma sandwichensis</i>	Endangered
114	Newell's Townsend's shearwater	<i>Puffinus auricularis newelli</i>	Threatened
135	Roseate tern	<i>Sterna dougallii dougallii</i>	Endangered
136	Roseate tern	<i>Sterna dougallii dougallii</i>	Threatened
7	West Indian manatee	<i>Trichechus manatus</i>	Threatened
143	Marbled murrelet	<i>Brachyramphus marmoratus</i>	Final CH
66	California condor	<i>Gymnogyps californianus</i>	Final CH

We proposed to delist the ivory-billed woodpecker with reopened comment period on January 11, 2022, but we have not finalized delisting (USFWS, 2021). We no longer believe the species is extant in the wild and there are no captive individuals, leading us to concur with EPA’s “not likely to adversely affect” determination due to discountable exposure. We believe the mao (honeyeater) is extirpated from the U.S. and its territories, though unconfirmed sightings were reported on one island of American Sāmoa (e.g., Tutuila) (USFWS, 2022). Recolonization or reintroduction efforts could return this species to the U.S. and/or its territories in the future. We expect the likelihood of effects to these species through either direct exposure or via food or habitat availability and quality to be extremely unlikely to occur (i.e., discountable).

The California condor’s primary food source is carrion, and we do not expect secondary exposure through deceased prey by the time the condor scavenges. Due to carbaryl’s low log K<sub>ow</sub>

<sup>4</sup> EXPN = non-essential experimental population

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value (2.4), we do not expect significant bioaccumulation in terrestrial and aquatic food items, and we consider this route of exposure to be discountable.

The band-rumped storm-petrel, short-tailed albatross, black-capped petrel, Hawaiian petrel, and Newell’s shearwater spend most of their time at sea, and they do not forage or breed in agricultural or non-agricultural use sites where carbaryl may be used. Similarly, marbled murrelets nest high in the canopy of late successional and old growth forest habitats where we do not expect that they will encounter carbaryl. The risk of exposure to these species or their food resources is very low. Additionally, the seabird species forage offshore in marine waters where we do not anticipate measurable effects to the species or their marine prey base. Considering low risk of exposure for individuals traveling over or through use sites to forage or during migration, we do not anticipate these species will encounter direct spray or spray drift from use sites. Therefore, we do not anticipate that the proposed action will be likely to adversely affect these species due to the likelihood of exposure being so remote as to be discountable.

The roseate tern occurs in areas where carbaryl use is not expected to occur. As such, we expect the risk of exposure to roseate terns and their food resources is very low. We do not anticipate that the proposed action will likely adversely affect this species because we expect the likelihood of exposure to be discountable.

The West Indian manatee is an aquatic mammal that eats aquatic vegetation. Because they occur in large, flowing waterbodies where we do not expect carbaryl to persist, we consider routes of exposure to the West Indian manatee to be discountable.

For Great Lakes piping plovers, we expect exposure and consequences are great enough to warrant a “likely to adversely affect” determination and do not concur with EPA’s “not likely to adversely affect” determination. We analyzed effects to this species further in our Opinion.

We do not anticipate carbaryl use is likely to adversely affect the designated critical habitats of the marbled murrelet or California condor because any potential effects are expected to be insignificant. Due to carbaryl’s low log  $K_{ow}$  value (2.4), we do not expect significant bioaccumulation in food items, and we consider potential risk from this route of exposure to be low for both species. The PBFs for the marbled murrelet include specific trees and forested areas needed for nesting (USFWS, 2016). None of the PBFs mentioned in the murrelet critical habitat rule are relevant to the types of PBFs that we anticipate will be adversely affected by pesticides (i.e., arthropod prey, non-arthropod prey, water quality, pollinators, host fish, and habitat function). The majority of the California condor’s critical habitat is on U.S. Forest Service lands where we expect minimal carbaryl use. Even though PBFs are not identified (USFWS, 1977), presumed habitat features needed by the species include carrion, open grasslands, oak savannas, and cliffs and mountain slopes for nesting (USFWS, 2013). Even though minimal exposure could occur, we expect effects to the condor’s critical habitat to be insignificant because none of the species’ habitat features would be affected by carbaryl exposure. While areas of murrelet and condor critical habitat may experience offsite runoff, spray drift exposure, and some level of adverse effects to resources that provide food and habitat for these species, we expect, at most, insignificant effects to relevant PBFs will occur.

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### Fishes

The Scioto madtom (*Noturus trautmani*), Apache trout (*Oncorhynchus apache*), and San Marcos gambusia (*Gambusia georgei*) were delisted (USFWS, 2023; USFWS, 2024) , so we removed them from our concurrence and biological opinion.

EPA made no other “not likely to adversely affect” determinations for fish species or critical habitats under Fish and Wildlife Service jurisdiction.

### Invertebrates (Arachnids, Insects, Snails)

The EPA made “not likely to adversely affect” determinations for 20 invertebrate species under Service jurisdiction. EPA also made “not likely to adversely affect” determinations for seven bivalve species that were delisted on October 17, 2023 (USFWS, 2023) and we removed them from our concurrence and consultation: yellow blossom (pearlymussel) (*Epioblasma florentina florentina*), green blossom (pearlymussel) (*Epioblasma torulosa gubernaculum*), tubercled blossom (pearlymussel) (*Epioblasma torulosa torulosa*; two entities), turgid blossom (pearlymussel) (*Epioblasma turgidula*; two entities), and flat pigtoe (*Pleurobema marshalli*). The EPA determined the proposed action is “not likely to adversely affect” critical habitat for *Rhadine* beetles (two entities), Helotes mold beetle, spruce-fir moss spider,, Cokendolpher Cave harvestman, Government Canyon Bat Cave spider, Madla Cave meshweaver, Robber Baron Cave meshweaver, Government Canyon Bat Cave meshweaver, and Ouachita fanshell (Table 4). We concur with these determinations.

The Braken Bat Cave meshweaver was delisted due to a data error on August 24, 2022 (USFWS, 2022), and we removed it from our concurrence and consultation.

**Table 3. “Not likely to adversely affect” determinations for listed invertebrates and their critical habitat.**

Taxa group	Entity ID	Common name	Scientific name	Species or critical habitat (CH) status
Arachnid	472	Robber Baron Cave meshweaver	<i>Cicurina baronia</i>	Endangered
Arachnid	471	Madla Cave meshweaver	<i>Cicurina madla</i>	Endangered
Arachnid	473	Government Canyon Bat Cave meshweaver	<i>Cicurina vespera</i>	Endangered
Arachnid	468	Spruce-fir moss spider	<i>Microhexura montivaga</i>	Endangered
Arachnid	470	Government Canyon Bat Cave spider	<i>Tayshaneta microps</i>	Endangered
Arachnid	467	Tooth Cave spider	<i>Tayshaneta myopica</i>	Endangered
Arachnid	469	Cokendolpher Cave harvestman	<i>Texella cokendolpheri</i>	Endangered

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Taxa group	Entity ID	Common name	Scientific name	Species or critical habitat (CH) status
Arachnid	464	Bee Creek Cave harvestman	<i>Texella reddelli</i>	Endangered
Arachnid	465	Bone Cave harvestman	<i>Texella reyesi</i>	Endangered
Insect	447	Coffin Cave mold beetle	<i>Batrisodes texanus</i>	Endangered
Insect	460	Helotes mold beetle	<i>Batrisodes venyivi</i>	Endangered
Insect	1260	Sacramento Mountains checkerspot butterfly	<i>Euphydryas anicia cloudcrofti</i>	Endangered
Insect	461	[no common name] beetle	<i>Rhadine exilis</i>	Endangered
Insect	459	[no common name] beetle	<i>Rhadine infernalis</i>	Endangered
Insect	449	Tooth Cave ground beetle	<i>Rhadine persephone</i>	Endangered
Insect	466	Tooth Cave pseudoscorpion	<i>Tartarocreagris texana</i>	Endangered
Insect	448	Kretschmarr Cave mold beetle	<i>Texamaurops reddelli</i>	Endangered
Snail	7918	Snail [no common name]	<i>Eua zebrina</i>	Endangered
Snail	389	Chittenango ovate amber snail	<i>Novisuccinea chittenangoensis</i>	Threatened
Snail	7907	Guam tree snail	<i>Partula radiolata</i>	Endangered
Insect	459	[no common name] beetle	<i>Rhadine infernalis</i>	Final CH
Insect	460	Helotes mold beetle	<i>Batrisodes venyivi</i>	Final CH
Insect	461	[no common name] beetle	<i>Rhadine exilis</i>	Final CH
Arachnid	468	Spruce-fir moss spider	<i>Microhexura montivaga</i>	Final CH
Arachnid	469	Cokendolpher Cave harvestman	<i>Texella cokendolpheri</i>	Final CH
Arachnid	470	Government Canyon Bat Cave spider	<i>Tayshaneta microps</i>	Final CH
Arachnid	471	Madla Cave meshweaver	<i>Cicurina madla</i>	Final CH
Arachnid	472	Robber Baron Cave meshweaver	<i>Cicurina baronia</i>	Final CH
Arachnid	473	Government Canyon Bat Cave meshweaver	<i>Cicurina vespera</i>	Final CH
Bivalve	11656	Ouachita fanshell	<i>Cyprogenia sp. cf. aberti</i>	Final CH

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The two *Rhadine* beetles, Bee Creek Cave harvestman, Bone Cave harvestman, Coffin Cave mold beetle, Cokendolpher Cave harvestman, Government Canyon Bat Cave meshweaver, Government Canyon Bat Cave spider, Helotes mold beetle, Kretschmarr Cave mold beetle, Madla Cave meshweaver, Robber Baron Cave meshweaver, Tooth Cave ground beetle, Tooth Cave pseudoscorpion, and Tooth Cave spider occur in caves. We do not expect adverse effects to cave species through groundwater penetration due to carbaryl’s low persistence. We expect recharge of karst cave systems, or the process of aboveground water reaching the groundwater supply, will often take weeks to months, at which point we expect carbaryl to be degraded and no longer present in the water as it enters the cave. As such, we expect exposure to be discountable.

Given the low sensitivity of snails to carbaryl at most estimated environmental concentrations (see the *Effects of the Action* section in the main biological opinion for more details), we anticipate that estimated environmental concentrations will be below levels we expect to result in sublethal effects or mortality. Thus, we anticipate no individuals of the Chittenango ovate amber snail, *Eua zebrina* snail, or Guam tree snail will be adversely affected from exposure to or direct adverse effects from carbaryl. As such, we expect any exposure to carbaryl to result in insignificant effects.

The spruce-fir moss spider and Sacramento Mountains checkerspot butterfly are found in high-elevation mountainous areas where we do not expect carbaryl use will occur. We do not expect these species to occur on or near carbaryl use sites as these areas do not represent suitable habitat for them and their habitats occur in areas that we expect to be at least 30 m from use sites (i.e., away from spray drift). Thus, we expect the likelihood of any individuals of these species being exposed to be so remote as to be discountable.

Given the low sensitivity of snails to carbaryl at most estimated environmental concentrations (see the *Effects of the Action* section in the main biological opinion for more details), we anticipate that estimated environmental concentrations will be below levels we expect to result in effects to relevant critical habitat PBFs (i.e., water quality). We do not anticipate carbaryl use will result in measurable reductions in water quality, so we expect any changes from carbaryl use will be insignificant.

We do not anticipate that carbaryl use is likely to adversely affect the other designated critical habitats because any exposure is expected to be discountable. Though the critical habitats for cave species (two *Rhadine* beetles, Braken Bat Cave meshweaver, Cokendolpher Cave harvestman, Government Canyon Bat Cave meshweaver, Government Canyon Bat Cave spider, Helotes mold beetle, Kauai cave wolf spider, Madla Cave meshweaver, and Robber Baron Cave meshweaver) list water quality as a PBF, we do not expect adverse effects to cave habitats through groundwater penetration due to carbaryl’s low persistence. We expect recharge of karst cave systems, or the process of aboveground water reaching the groundwater supply, will often take weeks to months, at which point we expect carbaryl to be degraded and no longer present in the water as it enters the cave. For the spruce-fir moss spider, the designated critical habitat rule mentions that the critical habitat may be affected by pesticide or herbicide use for controlling noxious species (i.e., habitat function). However, we do not expect the spruce-fir moss spider’s designated critical habitat to be adversely affected by carbaryl due to the critical habitat’s

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distance from carbaryl use sites. Spruce-fir moss spider critical habitat is in mountainous areas entirely on federal lands where we expect minimal, if any, carbaryl use will occur. As such, we expect any exposure to habitat PBFs and thereby critical habitat will be discountable for these invertebrates.

## Mammals

The EPA made “not likely to adversely affect” determinations for seven mammals species under Service jurisdiction (Table 6): wood bison (*Bison bison athabasca*; two entities), northern sea otter (*Enhydra lutris kenyoni*), southern sea otter (*Enhydra lutris nereis*), Sinaloan jaguarundi (*Herpailurus (=Felis) yagouaroundi tolteca*), silver rice rat (*Oryzomys palustris natator*), West Indian manatee (*Trichechus manatus*), and polar bear (*Ursus maritimus*). The EPA determined the proposed action is “not likely to adversely affect” critical habitat for the northern sea otter. We concur with these determinations.

The little Mariana fruit bat was delisted due to extinction on October 17, 2023 (USFWS, 2021), and we removed it from our concurrence and consultation.

**Table 4. “Not likely to adversely affect” determinations for listed mammal species and critical habitat.**

Entity ID	Common name	Scientific name	Species or critical habitat (CH) status
6654	Wood bison	<i>Bison bison athabasca</i>	Threatened
11670	Wood bison	<i>Bison bison athabasca</i>	EXPN <sup>5</sup>
5232	Northern sea otter	<i>Enhydra lutris kenyoni</i>	Threatened
45	Southern sea otter	<i>Enhydra lutris nereis</i>	Threatened
23	Sinaloan jaguarundi	<i>Herpailurus (=Felis) yagouaroundi tolteca</i>	Endangered
29	Silver rice rat	<i>Oryzomys palustris natator</i>	Endangered
7	West Indian manatee	<i>Trichechus manatus</i>	Threatened
8861	Polar bear	<i>Ursus maritimus</i>	Threatened
5232	Northern sea otter	<i>Enhydra lutris kenyoni</i>	Final CH

The action area overlaps a very small portion of the species’ range (<0.5% overlap) for the silver rice rat. In this small portion of the range, the rat may occur on or adjacent to carbaryl use sites and forage on contaminated dietary items, resulting in occasional minute exposure to carbaryl. However, we do not expect the silver rice rat to be exposed to carbaryl at levels that will cause measurable adverse effects to individuals (i.e., insignificant). In addition, we expect effects to food resources to be insignificant. The silver rice rat eats plants, insects, and crabs (USFWS, 1999). While we anticipate that carbaryl exposure is likely to cause mortality to arthropods, we do not expect concentrations will be high enough to cause trophic cascades that will reduce availability of prey species for the silver rice rat. Because the rat is a generalist that can forage on

<sup>5</sup> EXPN = non-essential experimental population

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a variety of food items, we expect any loss of arthropods to result in no more than insignificant effects to the species.

Wood bison primarily eat grasses (*Calamagrostis* spp.) and sedges (*Carex* spp.) in meadows on alkaline soils and early successional habitats found interspersed among tracts of coniferous forest, stands of poplar or aspen (*Populus* spp.), bogs, fens, and shrubland (USFWS, 2021). We do not expect carbaryl use in these areas and no exposure is expected to occur to individuals or their habitat. Therefore, the likelihood of exposure is considered discountable.

Sea otters are primarily aquatic but spend some time in terrestrial habitats (USFWS, 2020; USFWS, 2023). West Indian manatees are entirely aquatic (USFWS, 2007), and in the U.S., polar bears occur in aquatic and terrestrial environments in northern coastal Alaska (USFWS, 2023). We anticipate exposure of manatees and southern sea otters from the proposed action is most likely to occur from consuming contaminated prey items (i.e., aquatic plants, invertebrates, or fish) while they are in estuaries, near shore, and off-shore habitats. However, we do not expect carbaryl to accumulate in these prey items, nor do we expect changes in the prey base from carbaryl use. As such, we expect effects to the manatee and southern sea otter to be insignificant. Northern sea otters and polar bears are found in remote areas of Alaska where we expect exposure to carbaryl to be very unlikely and, therefore, considered discountable. For more information see the marine species qualitative effects analyses in the BE (Chapter 4).

We do not anticipate carbaryl use is likely to adversely affect the designated or proposed critical habitats for these species because any exposure is expected to be discountable. For the northern sea otter, prey resources in their habitat, specifically mollusks and other invertebrates, are listed as important features of critical habitat, but we do not expect carbaryl use in or near the species critical habitat due to its remoteness and lack of pesticide use in this area of southwest Alaska. As such, we expect the likelihood of exposure from carbaryl on northern sea otter critical habitat as being so remote as to be discountable.

## Reptiles

The EPA made “not likely to adversely affect” determinations for 13 reptile species entities (Table 7) under Service jurisdiction: loggerhead sea turtle (*Caretta caretta*), green sea turtle (*Chelonia mydas*; five entities), leatherback sea turtle (*Dermochelys coriacea*), hawksbill sea turtle (*Eretmochelys imbricata*), desert tortoise (*Gopherus agassizii*), Sonoyta mud turtle (*Kinosternon sonoriense longifemorale*), Kemp’s ridley sea turtle (*Lepidochelys kempii*), and olive ridley sea turtle (*Lepidochelys olivacea*; two entities). The EPA also determined the proposed action may affect but is “not likely to adversely affect” critical habitat for loggerhead sea turtle, green sea turtle, leatherback sea turtle, and desert tortoise. We concur with most of these determinations. For desert tortoise, we do not concur with the EPA’s “not likely to adversely affect” species determination and discuss below.

**Table 5. “Not likely to adversely affect” determinations for listed and candidate reptile species and critical habitat. For one species (Entity ID 185, designated with an asterisk**

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below), we did not concur with EPA’s “not likely to adversely affect” determination and we analyzed it further in our Opinion.

Entity ID	Common name	Scientific name	Species or critical habitat (CH) status
9707	Loggerhead sea turtle	<i>Caretta caretta</i>	Threatened
10485	Green sea turtle	<i>Chelonia mydas</i>	Threatened
11175	Green sea turtle	<i>Chelonia mydas</i>	Endangered
11176	Green sea turtle	<i>Chelonia mydas</i>	Endangered
11191	Green sea turtle	<i>Chelonia mydas</i>	Threatened
11192	Green sea turtle	<i>Chelonia mydas</i>	Threatened
11193	Green sea turtle	<i>Chelonia mydas</i>	Threatened
154	Leatherback sea turtle	<i>Dermochelys coriacea</i>	Endangered
153	Hawksbill sea turtle	<i>Eretmochelys imbricata</i>	Endangered
185*	Desert tortoise	<i>Gopherus agassizii</i>	Threatened
6620	Sonoyta mud turtle	<i>Kinosternon sonoriense longifemorale</i>	Endangered
155	Kemp’s ridley sea turtle	<i>Lepidochelys kempii</i>	Endangered
160	Olive ridley sea turtle	<i>Lepidochelys olivacea</i>	Threatened
5989	Olive ridley sea turtle	<i>Lepidochelys olivacea</i>	Endangered
9707	Loggerhead sea turtle	<i>Caretta caretta</i>	Final CH
11192	Green sea turtle	<i>Chelonia mydas</i>	Proposed CH
154	Leatherback sea turtle	<i>Dermochelys coriacea</i>	Final CH
185	Desert tortoise	<i>Gopherus agassizii</i>	Final CH

For the green sea turtle, hawksbill sea turtle, Kemp’s ridley sea turtle, leatherback sea turtle, loggerhead sea turtle, and olive ridley sea turtle, we share federal jurisdiction with the National Marine Fisheries Service (NMFS). We have lead responsibility on the nesting beaches and NMFS has lead responsibility on the marine environment. Therefore, our conclusions apply for sea turtles while in terrestrial habitats (i.e., on beaches). All sea turtles use beaches to lay their eggs and at least one species (green sea turtles in Hawaii) uses beaches to bask. We anticipate routes of exposure for sea turtles are primarily through contact with spray drift or consumption of contaminated food items (i.e., invertebrates or fish) while they are near shore. We do not anticipate spray drift contact will result in more than discountable levels of exposure because even if the surface sand is exposed to spray drift, carbaryl will not penetrate egg shells to reach developing eggs. Similarly, we do not expect dietary exposure will cause more than insignificant levels of adverse effects as we do not expect carbaryl will accumulate in marine prey items. Because sea turtles do not forage while on land, we do not expect dietary exposure while in

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terrestrial habitats. We expect insignificant effects from changes in prey base from carbaryl use because the species’ foraging areas are in the marine environment where carbaryl is not likely to accumulate at levels likely to adversely affect the species’ prey items. In addition, we expect exposure to sea turtle eggs through spray drift or runoff from nearby carbaryl use sites as carbaryl is not likely to penetrate through the eggshell. Therefore, we expect exposure to sea turtle eggs is unlikely, and if minimal exposure does occur, we expect insignificant effects. For more information, see the sea turtle qualitative effects analyses in the BE (Chapter 4).

The Sonoyta mud turtle occurs in fresh water and depends on aquatic habitat and nearby terrestrial habitat. Their aquatic habitats include streams and natural and manmade ponds, and they are opportunistic carnivores that feed on aquatic invertebrates. Their range in the U.S. is entirely on lands managed by the National Park Service (Quitobaquito Springs, Organ Pipe Cactus National Monument) where we expect minimal use of carbaryl (USFWS, 2017). Therefore, we expect discountable levels of exposure will occur.

For desert tortoise, we expect exposure and consequences related to indirect toxic effects are great enough to warrant a “likely to adversely affect” determination and do not concur with EPA’s “not likely to adversely affect” determination. We analyzed effects to this species further in our Opinion. EPA reached a “likely to adversely affect” determination for the eastern DPS of the gopher tortoise (formerly, a candidate species). We did not consider the eastern gopher tortoise DPS in our consultation or concurrence because it was “not warranted for listing” in 2022 (USFWS, 2022).

We do not anticipate carbaryl use is likely to adversely affect the designated or proposed critical habitats for the desert tortoise or sea turtles because any potential exposure is expected to be discountable or potential effects are expected to be insignificant. For green sea turtle, hawksbill sea turtle, and leatherback sea turtle, specific PBFs are not mentioned in the species’ critical habitat rules. For loggerhead sea turtles, PBFs are mentioned in the species’ critical habitat rules, but none are relevant to the types of PBFs that we anticipate will be adversely affected by pesticides (i.e., arthropod prey, non-arthropod prey, water quality, pollinators, host fish, habitat function). Green sea turtles primarily feed on algae and seagrasses, but they will occasionally eat invertebrates and fish. Hawksbill sea turtles feed on plants, sea sponges, mollusks, crustaceans, small fish, and jellyfish. Leatherback sea turtles feed on soft-bodied invertebrates like jellyfish and tunicates. Loggerhead sea turtles also eat marine invertebrates and fish. We do not expect these prey items to be present on the sea turtles’ terrestrial critical habitat, so we consider exposure to sea turtle prey items from carbaryl use in terrestrial habitats to be discountable. For desert tortoise, PBFs are mentioned in the designated critical habitat rule, and they are focused on space for movements and gene flow, plant forage, burrowing substrates, and habitat protected from anthropogenic mortality. Any potential exposure to desert tortoise’s critical habitat will result in insignificant adverse effects because carbaryl exposure will result in no more than insignificant adverse effects.

## **Plants (Conifers and Cycads, Ferns / Allies, Flowering Plants, Lichens)**

The EPA made “not likely to adversely affect” determinations for 12 plant species and three plant critical habitats (see Table 9). We concur with these determinations.

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The following plants were removed from our concurrence and consultation because they were delisted: *Adiantum vivesii* (USFWS, 2022), *Arenaria cumberlandensis* (USFWS, 2021), *Camissonia benitensis* (USFWS, 2022), *Castilleja levisecta* (USFWS, 2023), *Dudleya nesiotica* and *Galium buxifolium* (USFWS, 2023), *Howellia aquatilis* (USFWS, 2021), *Lepanthes eltoroensis* (USFWS, 2021), *Lomatium bradshawii* (USFWS, 2021), *Trifolium stoloniferum* (USFWS, 2021), *Chrysopsis floridana*, and four San Clemente Island plants (*Acmispon dendroideus* var. *traskiae*, *Castilleja grisea*, *Delphinium variegatum* ssp. *kinkiense*, and *Malacothamnus clementinus*).

**Table 6. “Not likely to adversely affect” determinations for listed and proposed flowering plant species and critical habitat.**

Entity ID	Common name	Scientific name	Species or critical habitat (CH) status
2823	Franciscan manzanita	<i>Arctostaphylos franciscana</i>	Endangered
632	Presidio manzanita	<i>Arctostaphylos hookeri</i> var. <i>ravenii</i>	Endangered
644	Virginia round-leaf birch	<i>Betula uber</i>	Threatened
909	Palo de nigua	<i>Cornutia obovata</i>	Endangered
1160	No common name	<i>Cranichis ricartii</i>	Endangered
539	Baker's larkspur	<i>Delphinium bakeri</i>	Endangered
1212	No common name	<i>Elaphoglossum serpens</i>	Endangered
792	Knowlton's cactus	<i>Pediocactus knowltonii</i>	Endangered
1201	Aleutian shield fern	<i>Polystichum aleuticum</i>	Endangered
10727	Berenghenas halomtano	<i>Solanum guamense</i>	Endangered
1214	No common name	<i>Tectaria estremerana</i>	Endangered
870	Texas wild-rice	<i>Zizania texana</i>	Endangered
2823	Franciscan manzanita	<i>Arctostaphylos franciscana</i>	Final CH
539	Baker's larkspur	<i>Delphinium bakeri</i>	Final CH
870	Texas wild-rice	<i>Zizania texana</i>	Final CH

We do not expect plants will experience any direct adverse effects from exposure to carbaryl (as detailed in the *General Effects to Plants* section in the Opinion). Adverse effects to listed plant species will occur only through indirect toxic effects to pollinators and seed dispersers. *Zizania texana* is pollinated and dispersed by wind and does not rely on pollinators. Therefore, we expect any exposure to carbaryl will result in insignificant effects and concur with “not likely to adversely affect” determinations for this species.

The remaining plants that we concur are “not likely to be adversely affected” by the proposed action are found in remote locations (e.g., *Cranichis ricartii*), mountain summits and ridges (e.g., *Polyscias lydgatei*), steep slopes (e.g., *Delphinium bakeri*), or forests (e.g., *Solanum guamense*)

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where we do not expect carbaryl use to occur. Thus, we anticipate that the likelihood of exposure is so remote as to be discountable.

We do not anticipate carbaryl use is likely to adversely affect the designated critical habitats for *Arctostaphylos franciscana*, *Delphinium bakeri*, or *Zizania texana* because any potential effects are expected to be insignificant. The PBFs identified in each designated critical habitat final rule describe the ecosystem type, elevation, annual precipitation, substrate, and canopy structure. Though *A. franciscana* and *D. bakeri* may rely, at least in part, on pollinators, none of the PBFs identified in their designated critical habitat rules are relevant to those that we anticipate will be adversely affected by pesticides, including carbaryl (i.e., arthropod prey, non-arthropod prey, water quality, pollinators, host fish, habitat function). Therefore, we expect any potential effects to the physical and biological features of the critical habitats to be insignificant for these species. In addition, *Z. texana* does not rely on pollinators, so any potential effects are expected to be insignificant.

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