Appendix A

Review of the EPA's "no effect" determinations and concurrence with the EPA's "not likely to adversely affect" determinations for methomyl.

No effect determinations

In their biological evaluation (BE) and subsequent correspondence for methomyl, the EPA provided determinations of "no effect" for 237 listed and proposed species (Table 1) and 259 designated and proposed critical habitats (Table 2). EPA reached a determination of "no effect" in two ways: if a listed species range or its critical habitat are outside the action area or any methomyl 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 physical and biological features (PBFs) in the critical habitat. For these critical habitats, , we reviewed the PBFs listed in the critical habitat proposal or designation, where applicable, and especially focused on six categories that could be affected by methomyl and other pesticides: arthropod prey, non-arthropod prey, water quality, pollinators, host fish, and habitat function. For the critical habitats that we adopt "no effect" determinations, they either did not occur where methomyl 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 methomyl. Some of the plants in Table 1 may be exposed to methomyl, but there will be no response or effect of the plant from methomyl because they do not rely on insect pollinators and there are no direct effects anticipated for plants from exposure to the chemical itself. For one species (*Kokia cookei*) and one critical habitat (*Cordylanthus mollis* ssp. *mollis*), we do not adopt "no effect" determinations and discuss further below.

Table 1. Listed and proposed species with "no effect" determinations. For one species (Entity ID 745, designated with an asterisk below), we did not agree with EPA's "no effect" determination, and we analyzed the species further in our Opinion.

Taxa group	Entity ID	Common name	Scientific name	Status
Amphibians	200	Shenandoah salamander	*Plethodon shenandoah*	Endangered
Aquatic invertebrates	418	Newcomb's snail	*Erinna newcombi*	Threatened
Aquatic invertebrates	2929	Anchialine pool shrimp	*Procaris hawaiana*	Endangered
Aquatic invertebrates	5449	Anchialine pool shrimp	*Vetericaris chaceorum*	Endangered

Appendix A – Methomyl "No Effect" Calls and Concurrence with "Not Likely to Adversely Affect" Calls

Taxa group	Entity ID	Common name	Scientific name	Status
Birds	68	Hawaiian (='alalā) crow	*Corvus hawaiiensis*	Endangered
Birds	146	Spectacled eider	*Somateria fischeri*	Threatened
Mammals	8166	Pacific sheath-tailed bat	*Emballonura semicaudata rotensis*	Endangered
Plants	619	Liliwai	*Acaena exigua*	Endangered
Plants	1193	Pendant kihi fern	*Adenophorus periens*	Endangered
Plants	634	Mauna Loa (=Ka'u) silversword	*Argyroxiphium kauense*	Endangered
Plants	882	Ahinahina	*Argyroxiphium sandwicense ssp. sandwicense*	Endangered
Plants	1196	Asplenium-leaved diellia	*Asplenium dielerectum*	Endangered
Plants	1197	No common name	*Asplenium dielfalcatum*	Endangered
Plants	10586	No common name	*Asplenium diellaciniatum*	Endangered
Plants	7529	No common name	*Asplenium dielmannii*	Endangered
Plants	1218	No common name	*Asplenium dielpallidum*	Endangered
Plants	1194	No common name	*Asplenium peruvianum var. insulare*	Endangered
Plants	1195	American hart's-tongue fern	*Asplenium scolopendrium var. americanum*	Threatened
Plants	1211	No common name	*Asplenium unisorum*	Endangered
Plants	6845	Pa'iniu	*Astelia waialealae*	Endangered
Plants	510	Lane Mountain milk-vetch	*Astragalus jaegerianus*	Endangered
Plants	8338	Ko'oko'olau	*Bidens conjuncta*	Endangered
Plants	6632	Hillegrand's reedgrass	*Calamagrostis hillebrandii*	Endangered
Plants	533	Oha wai	*Clermontia drepanomorpha*	Endangered
Plants	1097	Oha wai	*Clermontia oblongifolia ssp. brevipes*	Endangered
Plants	673	Oha wai	*Clermontia pyrularia*	Endangered
Plants	1188	Oha wai	*Clermontia samuelii*	Endangered
Plants	1205	Pauoa	*Ctenitis squamigera*	Endangered
Plants	1185	Haha	*Cyanea copelandii ssp. haleakalaensis*	Endangered
Plants	9951	Haha	*Cyanea dolichopoda*	Endangered

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Taxa group	Entity ID	Common name	Scientific name	Status
Plants	1101	Haha	*Cyanea dunbariae*	Endangered
Plants	10222	Haha	*Cyanea duvalliorum*	Endangered
Plants	1052	Haha	*Cyanea gibsonii*	Endangered
Plants	1102	Haha	*Cyanea glabra*	Endangered
Plants	9952	Haha	*Cyanea kolekoleensis*	Endangered
Plants	4961	Haha	*Cyanea kuhihewa*	Endangered
Plants	1968	Haha	*Cyanea kunthiana*	Endangered
Plants	1103	Haha	*Cyanea mannii*	Endangered
Plants	10227	Haha	*Cyanea munroi*	Endangered
Plants	915	Haha	*Cyanea pinnatifida*	Endangered
Plants	1104	Haha	*Cyanea procera*	Endangered
Plants	6303	No common name	*Cyanea profuga*	Endangered
Plants	1105	Haha	*Cyanea recta*	Threatened
Plants	1176	Haha	*Cyanea remyi*	Endangered
Plants	537	Haha	*Cyanea rivularis*	Endangered
Plants	686	Haha	*Cyanea shipmanii*	Endangered
Plants	5956	Popolo	*Cyanea solanacea*	Endangered
Plants	687	Haha	*Cyanea st.-johnii*	Endangered
Plants	1107	Haha	*Cyanea undulata*	Endangered
Plants	1206	Elfin tree fern	*Cyathea dryopteroides*	Endangered
Plants	1407	No common name	*Cyperus neokunthianus*	Endangered
Plants	1109	Mapele	*Cyrtandra cyaneoides*	Endangered
Plants	10228	Ha'iwale	*Cyrtandra ferripilosa*	Endangered
Plants	3020	Ha'iwale	*Cyrtandra hematos*	Endangered
Plants	6679	Ha'iwale	*Cyrtandra oenobarba*	Endangered
Plants	1349	Ha'iwale	*Cyrtandra oxybapha*	Endangered
Plants	9953	Haiwale	*Cyrtandra paliku*	Endangered
Plants	2273	Ha'iwale	*Cyrtandra sessilis*	Endangered
Plants	1112	Ha'iwale	*Cyrtandra viridiflora*	Endangered
Plants	10587	No common name	*Deparia kaalaana*	Endangered
Plants	1198	No common name	*Diplazium molokaiense*	Endangered
Plants	11016	South Llano Springs moss	*Donrichardsia macroneuron*	Endangered
Plants	9962	No common name	*Doryopteris angelica*	Endangered
Plants	2268	No common name	*Doryopteris takeuchii*	Endangered
Plants	1497	Hala pepe	*Dracaena (=Pleomele) fernaldii*	Endangered

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Taxa group	Entity ID	Common name	Scientific name	Status
Plants	9963	Palapalai aumakua	*Dryopteris crinalis var. podosorus*	Endangered
Plants	2782	Hohiu	*Dryopteris glabra var. pusilla*	Endangered
Plants	4858	Na'ena'e	*Dubautia imbricata ssp. imbricata*	Endangered
Plants	9954	Na'ena'e	*Dubautia kalalauensis*	Endangered
Plants	9955	Na'ena'e	*Dubautia kenwoodii*	Endangered
Plants	1113	Na'ena'e	*Dubautia pauciflorula*	Endangered
Plants	2154	Na'ena'e	*Dubautia waialealae*	Endangered
Plants	1212	No common name	*Elaphoglossom serpens*	Endangered
Plants	5358	Tiehm's buckwheat	*Eriogonum tiehmii*	Endangered
Plants	1179	Akoko	*Euphorbia herbstii*	Endangered
Plants	1180	Akoko	*Euphorbia rockii*	Endangered
Plants	6176	No common name	*Festuca hawaiiensis*	Endangered
Plants	10235	No common name	*Festuca molokaiensis*	Endangered
Plants	717	Nohoanu	*Geranium arboreum*	Endangered
Plants	2758	Nohoanu	*Geranium hanaense*	Endangered
Plants	3653	Nohoanu	*Geranium hillebrandii*	Endangered
Plants	4630	Nohoanu	*Geranium kauaiense*	Endangered
Plants	939	Nohoanu	*Geranium multiflorum*	Endangered
Plants	733	No common name	*Hesperomannia lydgatei*	Endangered
Plants	1177	Hau kuahiwi	*Hibiscadelphus woodii*	Endangered
Plants	1047	Water howellia	*Howellia aquatilis*	Threatened
Plants	4680	No common name	*Huperzia stemmermanniae*	Endangered
Plants	10594	Olua	*Hypolepis hawaiiensis var. mauiensis*	Endangered
Plants	949	Peter's Mountain mallow	*Iliamna corei*	Endangered
Plants	952	Aupaka	*Isodendrion hosakae*	Endangered
Plants	1199	Louisiana quillwort	*Isoetes louisianensis*	Endangered
Plants	1203	Black spored quillwort	*Isoetes melanospora*	Endangered
Plants	1204	Mat-forming quillwort	*Isoetes tegetiformans*	Endangered
Plants	1118	Kopa	*Kadua cordata remyi*	Endangered
Plants	726	No common name	*Kadua degeneri*	Endangered
Plants	1187	Kohe malama malama o kanaloa	*Kanaloa kahoolawensis*	Endangered

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Taxa group	Entity ID	Common name	Scientific name	Status
Plants	4487	No common name	*Keysseria (=Lagenifera) erici*	Endangered
Plants	8254	No common name	*Keysseria (=Lagenifera) helenae*	Endangered
Plants	745*	Cooke's koki'o	*Kokia cookei*	Endangered
Plants	955	Kamakahala	*Labordia lydgatei*	Endangered
Plants	3832	Kamakahala	*Labordia pumila*	Endangered
Plants	1232	Kamakahala	*Labordia tinifolia var. lanaiensis*	Endangered
Plants	565	Kamakahala	*Labordia triflora*	Endangered
Plants	1124	No common name	*Leptocereus grantianus*	Endangered
Plants	572	No common name	*Lobelia koolauensis*	Endangered
Plants	759	No common name	*Lobelia oahuensis*	Endangered
Plants	7170	Lehua makanoe	*Lysimachia daphnoides*	Endangered
Plants	9956	No common name	*Lysimachia iniki*	Endangered
Plants	1128	No common name	*Lysimachia lydgatei*	Endangered
Plants	1129	No common name	*Lysimachia maxima*	Endangered
Plants	9957	No common name	*Lysimachia pendens*	Endangered
Plants	9958	No common name	*Lysimachia scopulensis*	Endangered
Plants	5104	No common name	*Lysimachia venosa*	Endangered
Plants	1200	Ihi’ihi	*Marsilea villosa*	Endangered
Plants	5709	No common name	*Melicope (=Platydesma) remyi*	Endangered
Plants	3387	Pilo kea lau li'i	*Melicope (=Platydesma) rostrata*	Endangered
Plants	765	Alani	*Melicope balloui*	Endangered
Plants	1609	Alani	*Melicope degeneri*	Endangered
Plants	3728	Alani	*Melicope makahae*	Endangered
Plants	770	Alani	*Melicope munroi*	Endangered
Plants	8357	Alani	*Melicope paniculata*	Endangered
Plants	3753	Alani	*Melicope puberula*	Endangered
Plants	773	Alani	*Melicope quadrangularis*	Endangered
Plants	774	Alani	*Melicope reflexa*	Endangered
Plants	1311	Boyd’s maiden fern (Kupukupu makali’i)	*Menisciopsis (=Cyclosorus) boydiae*	Endangered
Plants	1840	No common name	*Microlepia strigosa var. mauiensis*	Endangered

Taxa group	Entity ID	Common name	Scientific name	Status
Plants	1133	Kolea	*Myrsine juddii*	Endangered
Plants	9959	Kolea	*Myrsine knudsenii*	Endangered
Plants	577	Kolea	*Myrsine linearifolia*	Threatened
Plants	1521	Kolea	*Myrsine mezii*	Endangered
Plants	2970	Kolea	*Myrsine vaccinioides*	Endangered
Plants	580	Colusa grass	*Neostapfia colusana*	Threatened
Plants	785	California Orcutt grass	*Orcuttia californica*	Endangered
Plants	786	San Joaquin Orcutt grass	*Orcuttia inaequalis*	Threatened
Plants	582	Hairy Orcutt grass	*Orcuttia pilosa*	Endangered
Plants	583	Slender Orcutt grass	*Orcuttia tenuis*	Threatened
Plants	787	Sacramento Orcutt grass	*Orcuttia viscida*	Endangered
Plants	791	Brady pincushion cactus	*Pediocactus bradyi*	Endangered
Plants	793	Peebles Navajo cactus	*Pediocactus peeblesianus var. peeblesianus*	Endangered
Plants	2683	Ala 'ala wai nui	*Peperomia subpetiolata*	Endangered
Plants	1207	Wawae`iole	*Phlegmariurus (=Huperzia) mannii*	Endangered
Plants	1208	Wawae`iole	*Phlegmariurus (=Huperzia) nutans*	Endangered
Plants	4754	No common name	*Phyllostegia helleri*	Endangered
Plants	7229	No common name	*Phyllostegia hispida*	Endangered
Plants	1184	No common name	*Phyllostegia kaalaensis*	Endangered
Plants	590	No common name	*Phyllostegia knudsenii*	Endangered
Plants	1163	No common name	*Phyllostegia mannii*	Endangered
Plants	9960	No common name	*Phyllostegia renovans*	Endangered
Plants	1138	No common name	*Phyllostegia warshaueri*	Endangered
Plants	1139	No common name	*Phyllostegia wawrana*	Endangered
Plants	4740	Hoawa	*Pittosporum halophilum*	Endangered
Plants	1140	Kuahiwi laukahi	*Plantago hawaiensis*	Endangered
Plants	801	Hawaiian bluegrass	*Poa sandvicensis*	Endangered
Plants	9961	No common name	*Polyscias flynnii*	Endangered
Plants	1201	Aleutian shield fern	*Polystichum aleuticum*	Endangered
Plants	1213	No common name	*Polystichum calderonense*	Endangered
Plants	807	Little Aguja (=Creek) pondweed	*Potamogeton clystocarpus*	Endangered
Plants	597	Wahane	*Pritchardia aylmer-robinsonii*	Endangered

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Taxa group	Entity ID	Common name	Scientific name	Status
Plants	2727	Lo'ulu	*Pritchardia hardyi*	Endangered
Plants	808	Lo'ulu	*Pritchardia munroi*	Endangered
Plants	1144	Lo'ulu	*Pritchardia viscosa*	Endangered
Plants	2619	Kopiko	*Psychotria grandiflora*	Endangered
Plants	1202	No common name	*Pteris lidgatei*	Endangered
Plants	2682	Makou	*Ranunculus hawaiensis*	Endangered
Plants	815	Maui remya	*Remya mauiensis*	Endangered
Plants	1083	No common name	*Remya montgomeryi*	Endangered
Plants	1146	No common name	*Sanicula mariversa*	Endangered
Plants	3784	No common name	*Sanicula sandwicensis*	Endangered
Plants	821	Diamond Head schiedea	*Schiedea adamantis*	Endangered
Plants	2404	No common name	*Schiedea attenuata*	Endangered
Plants	1066	No common name	*Schiedea haleakalensis*	Endangered
Plants	3175	Ma'oli'oli	*Schiedea hawaiiensis*	Endangered
Plants	1067	No common name	*Schiedea helleri*	Endangered
Plants	10232	No common name	*Schiedea jacobii*	Endangered
Plants	1147	No common name	*Schiedea kauaiensis*	Endangered
Plants	1084	Kuawawaenohu	*Schiedea lychnoides*	Endangered
Plants	1068	No common name	*Schiedea lydgatei*	Endangered
Plants	622	No common name	*Schiedea obovata*	Endangered
Plants	605	No common name	*Schiedea sarmentosa*	Endangered
Plants	623	No common name	*Schiedea trinervis*	Endangered
Plants	823	Northeastern bulrush	*Scirpus ancistrochaetus*	Endangered
Plants	829	No common name	*Silene alexandri*	Endangered
Plants	1155	No common name	*Stenogyne bifida*	Endangered
Plants	1156	No common name	*Stenogyne campanulata*	Endangered
Plants	6257	No common name	*Stenogyne cranwelliae*	Endangered
Plants	4297	No common name	*Stenogyne kaalae ssp. sherffii*	Endangered
Plants	839	No common name	*Stenogyne kanehoana*	Endangered
Plants	2517	No common name	*Stenogyne kealiae*	Endangered
Plants	1214	No common name	*Tectaria estremerana*	Endangered
Plants	1215	No common name	*Thelypteris inabonensis*	Endangered
Plants	1209	Alabama streak-sorus fern	*Thelypteris pilosa var. alabamensis*	Threatened
Plants	1216	No common name	*Thelypteris verecunda*	Endangered
Plants	1217	No common name	*Thelypteris yaucoensis*	Endangered

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Taxa group	Entity ID	Common name	Scientific name	Status
Plants	1157	No common name	*Trematolobelia singularis*	Endangered
Plants	9721	Florida bristle fern	*Trichomanes punctatum ssp. floridanum*	Endangered
Plants	858	Greene's tuctoria	*Tuctoria greenei*	Endangered
Plants	861	Hawaiian vetch	*Vicia menziesii*	Endangered
Plants	864	No common name	*Viola helenae*	Endangered
Plants	865	Nani wai'ale'ale	*Viola kauaiensis var. wahiawaensis*	Endangered
Plants	866	No common name	*Viola lanaiensis*	Endangered
Plants	867	No common name	*Viola oahuensis*	Endangered
Plants	7840	No common name	*Wikstroemia skottsbergiana*	Endangered
Plants	4238	No common name	*Wikstroemia villosa*	Endangered
Plants	1016	No common name	*Xylosma crenatum*	Endangered
Plants	7979	A'e	*Zanthoxylum oahuense*	Endangered
Plants	870	Texas wild-rice	*Zizania texana*	Endangered
Reptiles	162	Culebra Island giant anole	*Anolis roosevelti*	Endangered
Terrestrial invertebrates	9461	O'ahu tree snail	*Achatinella bellula*	Endangered
Terrestrial invertebrates	9421	O'ahu tree snail	*Achatinella bulimoides*	Endangered
Terrestrial invertebrates	9423	O'ahu tree snail	*Achatinella byronii*	Endangered
Terrestrial invertebrates	9465	O'ahu tree snail	*Achatinella cestus*	Endangered
Terrestrial invertebrates	9409	O'ahu tree snail	*Achatinella decipiens*	Endangered
Terrestrial invertebrates	9439	O'ahu tree snail	*Achatinella dimorpha*	Endangered
Terrestrial invertebrates	9467	O'ahu tree snail	*Achatinella juddi*	Endangered
Terrestrial invertebrates	9417	O'ahu tree snail	*Achatinella leucorraphe*	Endangered
Terrestrial invertebrates	9415	O'ahu tree snail	*Achatinella lila*	Endangered
Terrestrial invertebrates	9395	O'ahu tree snail	*Achatinella sowerbyana*	Endangered

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Taxa group	Entity ID	Common name	Scientific name	Status
Terrestrial invertebrates	9457	O'ahu tree snail	*Achatinella valida*	Endangered
Terrestrial invertebrates	1248	Hawaiian picture-wing fly	*Drosophila aglaia*	Endangered
Terrestrial invertebrates	1259	Hawaiian picture-wing fly	*Drosophila differens*	Endangered
Terrestrial invertebrates	1257	Hawaiian picture-wing fly	*Drosophila hemipeza*	Endangered
Terrestrial invertebrates	1250	Hawaiian picture-wing fly	*Drosophila montgomeryi*	Endangered
Terrestrial invertebrates	1252	Hawaiian picture-wing fly	*Drosophila musaphilia*	Endangered
Terrestrial invertebrates	1253	Hawaiian picture-wing fly	*Drosophila neoclavisetae*	Endangered
Terrestrial invertebrates	1254	Hawaiian picture-wing fly	*Drosophila obatai*	Endangered
Terrestrial invertebrates	1258	Hawaiian picture-wing fly	*Drosophila ochrobasis*	Endangered
Terrestrial invertebrates	7261	Hawaiian picture-wing fly	*Drosophila sharpi*	Endangered
Terrestrial invertebrates	1255	Hawaiian picture-wing fly	*Drosophila substenoptera*	Endangered
Terrestrial invertebrates	1256	Hawaiian picture-wing fly	*Drosophila tarphytrichia*	Endangered
Terrestrial invertebrates	5580	Anthricinan yellow-faced bee	*Hylaeus anthracinus*	Endangered
Terrestrial invertebrates	7955	Hilaris yellow-faced bee	*Hylaeus hilaris*	Proposed Endangered
Terrestrial invertebrates	10009	Hawaiian yellow-faced bee	*Hylaeus kuakea*	Endangered
Terrestrial invertebrates	10008	Hawaiian yellow-faced bee	*Hylaeus mana*	Endangered
Terrestrial invertebrates	9001	Mount Charleston blue butterfly	*Icaricia (Plebejus) shasta charlestonensis*	Endangered
Terrestrial invertebrates	7731	Langford's tree snail	*Partula langfordi*	Endangered
Terrestrial invertebrates	1989	Lanai tree snail	*Partulina semicarinata*	Endangered

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Taxa group	Entity ID	Common name	Scientific name	Status
Terrestrial invertebrates	3385	Lanai tree snail	*Partulina variabilis*	Endangered

Table 2. Designated and proposed critical habitats with "no effect" determinations. For one critical habitat (Entity ID 534, designated with an asterisk below), we did not concur with EPA's "no effect" determination, and we analyzed the critical habitats further in our Opinion.

Taxa group	Entity ID	Common name	Scientific name
Amphibians	193	Golden coqui	*Eleutherodactylus jasperi*
Amphibians	9378	Llanero coqui	*Eleutherodactylus juanariveroi*
Amphibians	207	Mountain yellow-legged frog	*Rana muscosa*
Aquatic invertebrates	439	Ash Meadows naucorid	*Ambrysus amargosus*
Aquatic invertebrates	418	Newcomb's snail	*Erinna newcombi*
Aquatic invertebrates	482	Kentucky cave shrimp	*Palaemonias ganteri*
Aquatic invertebrates	4162	Chupadera springsnail	*Pyrgulopsis chupaderae*
Birds	119	Guam Micronesian kingfisher	*Halcyon cinnamomina cinnamomina*
Birds	79	Palila (honeycreeper)	*Loxioides bailleui*
Birds	6522	Akekee	*Loxops caeruleirostris*
Birds	4136	Akikiki	*Oreomystis bairdi*
Birds	137	Inyo California towhee	*Pipilo crissalis eremophilus*
Birds	147	Steller's Eider	*Polysticta stelleri*
Birds	4237	Elfin-woods warbler	*Setophaga angelae*
Birds	146	Spectacled eider	*Somateria fischeri*
Fish	275	Desert pupfish	*Cyprinodon macularius*
Mammals	28	Amargosa vole	*Microtus californicus scirpensis*
Mammals	8962	Mariana fruit Bat (=Mariana flying fox)	*Pteropus mariannus mariannus*
Plants	619	Liliwai	*Acaena exigua*
Plants	497	No common name	*Achyranthes mutica*
Plants	1193	Pendant kihi fern	*Adenophorus periens*
Plants	1193	Pendant kihi fern	*Adenophorus periens*

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Taxa group	Entity ID	Common name	Scientific name
Plants	3671	No common name	*Agave eggersiana*
Plants	621	Mahoe	*Alectryon macrococcus*
Plants	1074	Munz's onion	*Allium munzii*
Plants	626	Large-flowered fiddleneck	*Amsinckia grandiflora*
Plants	634	Mauna Loa (=Ka'u) silversword	*Argyroxiphium kauense*
Plants	635	Ahinahina	*Argyroxiphium sandwicense ssp. macrocephalum*
Plants	1196	Asplenium-leaved diellia	*Asplenium dielerectum*
Plants	1196	Asplenium-leaved diellia	*Asplenium dielerectum*
Plants	1197	No common name	*Asplenium dielfalcatum*
Plants	1197	No common name	*Asplenium dielfalcatum*
Plants	7529	No common name	*Asplenium dielmannii*
Plants	1218	No common name	*Asplenium dielpallidum*
Plants	1218	No common name	*Asplenium dielpallidum*
Plants	1194	No common name	*Asplenium peruvianum var. insulare*
Plants	1194	No common name	*Asplenium peruvianum var. insulare*
Plants	1211	No common name	*Asplenium unisorum*
Plants	1211	No common name	*Asplenium unisorum*
Plants	6845	Pa'iniu	*Astelia waialealae*
Plants	1086	Cushenbury milk-vetch	*Astragalus albens*
Plants	510	Lane Mountain milk-vetch	*Astragalus jaegerianus*
Plants	888	Heliotrope milk-vetch	*Astragalus montii*
Plants	514	Nevin's barberry	*Berberis nevinii*
Plants	8338	Ko'oko'olau	*Bidens conjuncta*
Plants	645	Ko'oko'olau	*Bidens micrantha ssp. kalealaha*
Plants	646	Ko'oko'olau	*Bidens wiebkei*
Plants	648	No common name	*Bonamia menziesii*
Plants	6632	Hillegrand's reedgrass	*Calamagrostis hillebrandii*
Plants	654	Awikiwiki	*Canavalia molokaiensis*
Plants	2118	Awikiwiki	*Canavalia napaliensis*
Plants	7805	Awikiwiki	*Canavalia pubescens*
Plants	656	Navajo sedge	*Carex specuicola*
Plants	522	Fleshy owl's-clover	*Castilleja campestris ssp. succulenta*
Plants	1092	No common name	*Catesbaea melanocarpa*
Plants	1166	Vail Lake ceanothus	*Ceanothus ophiochilus*

Appendix A – Methomyl "No Effect" Calls and Concurrence with "Not Likely to Adversely Affect" Calls

Taxa group	Entity ID	Common name	Scientific name
Plants	527	Hoover's spurge	*Chamaesyce hooveri*
Plants	533	Oha wai	*Clermontia drepanomorpha*
Plants	671	Oha wai	*Clermontia lindseyana*
Plants	1097	Oha wai	*Clermontia oblongifolia ssp. brevipes*
Plants	672	Oha wai	*Clermontia peleana*
Plants	673	Oha wai	*Clermontia pyrularia*
Plants	674	Kauila	*Colubrina oppositifolia*
Plants	534*	Soft bird's-beak	*Cordylanthus mollis ssp. mollis*
Plants	1205	Pauoa	*Ctenitis squamigera*
Plants	1205	Pauoa	*Ctenitis squamigera*
Plants	1099	Haha	*Cyanea asarifolia*
Plants	7892	Haha	*Cyanea asplenifolia*
Plants	9951	Haha	*Cyanea dolichopoda*
Plants	1101	Haha	*Cyanea dunbariae*
Plants	684	Haha	*Cyanea grimesiana ssp. grimesiana*
Plants	1050	Haha	*Cyanea hamatiflora ssp. carlsonii*
Plants	1051	Haha	*Cyanea lobata*
Plants	10224	Haha	*Cyanea magnicalyx*
Plants	1103	Haha	*Cyanea mannii*
Plants	10227	Haha	*Cyanea munroi*
Plants	916	`Aku`aku	*Cyanea platyphylla*
Plants	1104	Haha	*Cyanea procera*
Plants	6303	No common name	*Cyanea profuga*
Plants	1105	Haha	*Cyanea recta*
Plants	686	Haha	*Cyanea shipmanii*
Plants	5956	Popolo	*Cyanea solanacea*
Plants	917	Haha	*Cyanea stictophylla*
Plants	1107	Haha	*Cyanea undulata*
Plants	1131	No common name	*Cyperus fauriei*
Plants	1032	No common name	*Cyperus pennatiformis*
Plants	1108	Pu'uka'a	*Cyperus trachysanthos*
Plants	1109	Mapele	*Cyrtandra cyaneoides*
Plants	2085	Ha'iwale	*Cyrtandra filipes*
Plants	1230	Ha'iwale	*Cyrtandra munroi*
Plants	6679	Ha'iwale	*Cyrtandra oenobarba*
Plants	1349	Ha'iwale	*Cyrtandra oxybapha*
Plants	9953	Haiwale	*Cyrtandra paliku*

Appendix A – Methomyl “No Effect” Calls and Concurrence with “Not Likely to Adversely Affect” Calls

Taxa group	Entity ID	Common name	Scientific name
Plants	1111	Ha'iwale	*Cyrtandra tintinnabula*
Plants	692	No common name	*Delissea rhytidosperma*
Plants	538	No common name	*Delissea undulata*
Plants	1198	No common name	*Diplazium molokaiense*
Plants	1198	No common name	*Diplazium molokaiense*
Plants	11016	South Llano Springs moss	*Donrichardsia macroneuron*
Plants	9962	No common name	*Doryopteris angelica*
Plants	2268	No common name	*Doryopteris takeuchii*
Plants	9963	Palapalai aumakua	*Dryopteris crinalis var. podosorus*
Plants	9954	Naenae	*Dubautia kalalauensis*
Plants	9955	Naenae	*Dubautia kenwoodii*
Plants	697	Koholapehu	*Dubautia latifolia*
Plants	1113	Na'ena'e	*Dubautia pauciflorula*
Plants	1114	Na'ena'e	*Dubautia plantaginea ssp. humilis*
Plants	3049	Na'ena'e	*Dubautia plantaginea ssp. magnifolia*
Plants	2154	Na'ena'e	*Dubautia waialealae*
Plants	928	Parish's daisy	*Erigeron parishii*
Plants	710	Cushenbury buckwheat	*Eriogonum ovalifolium var. vineum*
Plants	5358	Tiehm’s buckwheat	*Eriogonum tiehmii*
Plants	1116	Nioi	*Eugenia koolauensis*
Plants	1502	Akoko	*Euphorbia eleanoriae*
Plants	938	Heau	*Exocarpos luteolus*
Plants	6782	Guadalupe fescue	*Festuca ligulata*
Plants	10235	No common name	*Festuca molokaiensis*
Plants	1117	Mehamehame	*Flueggea neowawraea*
Plants	1027	Mexican flannelbush	*Fremontodendron mexicanum*
Plants	717	Nohoanu	*Geranium arboreum*
Plants	3653	Nohoanu	*Geranium hillebrandii*
Plants	4630	Nohoanu	*Geranium kauaiense*
Plants	3990	No common name	*Gonocalyx concolor*
Plants	721	No common name	*Gouania vitifolia*
Plants	871	Todsen's pennyroyal	*Hedeoma todsenii*
Plants	731	No common name	*Hesperomannia arborescens*
Plants	733	No common name	*Hesperomannia lydgatei*
Plants	561	Hau kuahiwi	*Hibiscadelphus hualalaiensis*
Plants	1177	Hau kuahiwi	*Hibiscadelphus woodii*

Appendix A – Methomyl "No Effect" Calls and Concurrence with "Not Likely to Adversely Affect" Calls

Taxa group	Entity ID	Common name	Scientific name
Plants	947	Koki'o ke'oke'o	*Hibiscus arnottianus ssp. immaculatus*
Plants	1207	Wawae'iole	*Huperzia mannii*
Plants	1208	Wawae'iole	*Huperzia nutans*
Plants	951	Hilo ischaemum	*Ischaemum byrone*
Plants	952	Aupaka	*Isodendrion hosakae*
Plants	741	Kula wahine noho	*Isodendrion pyrifolium*
Plants	727	pilo	*Kadua laxiflora*
Plants	1187	Kohe malama malama o kanaloa	*Kanaloa kahoolawensis*
Plants	4487	No common name	*Keysseria (=Lagenifera) erici*
Plants	8254	No common name	*Keysseria (=Lagenifera) helenae*
Plants	745	Cooke's koki'o	*Kokia cookei*
Plants	747	Koki'o	*Kokia kauaiensis*
Plants	1693	Hulumoa	*Korthalsella degeneri*
Plants	955	Kamakahala	*Labordia lydgatei*
Plants	3832	Kamakahala	*Labordia pumila*
Plants	1178	Kamakahala	*Labordia tinifolia var. wahiawaensis*
Plants	565	Kamakahala	*Labordia triflora*
Plants	567	Anaunau	*Lepidium arbuscula*
Plants	958	San Bernardino Mountains bladderpod	*Lesquerella kingii ssp. bernardina*
Plants	755	Nehe	*Lipochaeta fauriei*
Plants	756	Nehe	*Lipochaeta lobata var. leptophylla*
Plants	962	Nehe	*Lipochaeta micrantha*
Plants	7170	lehua makanoe	*Lysimachia daphnoides*
Plants	9956	No common name	*Lysimachia iniki*
Plants	1129	No common name	*Lysimachia maxima*
Plants	9957	No common name	*Lysimachia pendens*
Plants	9958	No common name	*Lysimachia scopulensis*
Plants	5104	No common name	*Lysimachia venosa*
Plants	1200	Ihi'ihi	*Marsilea villosa*
Plants	961	Nehe	*Melanthera kamolensis*
Plants	5709	No common name	*Melicope (=Platydesma) remyi*
Plants	1132	Alani	*Melicope adscendens*
Plants	1609	Alani	*Melicope degeneri*
Plants	766	Alani	*Melicope haupuensis*

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Taxa group	Entity ID	Common name	Scientific name
Plants	767	Alani	*Melicope knudsenii*
Plants	769	Alani	*Melicope mucronulata*
Plants	770	Alani	*Melicope munroi*
Plants	774	Alani	*Melicope reflexa*
Plants	576	Willowy monardella	*Monardella viminea*
Plants	10229	Ssea bean	*Mucuna sloanei var. persericea*
Plants	9959	Kolea	*Myrsine knudsenii*
Plants	577	Kolea	*Myrsine linearifolia*
Plants	1521	Kolea	*Myrsine mezii*
Plants	2970	Kolea	*Myrsine vaccinioides*
Plants	580	Colusa grass	*Neostapfia colusana*
Plants	973	Amargosa niterwort	*Nitrophila mohavensis*
Plants	780	Aiea	*Nothocestrum breviflorum*
Plants	782	Kulu'i	*Nototrichium humile*
Plants	786	San Joaquin Orcutt grass	*Orcuttia inaequalis*
Plants	582	Hairy Orcutt grass	*Orcuttia pilosa*
Plants	583	Slender Orcutt grass	*Orcuttia tenuis*
Plants	787	Sacramento Orcutt grass	*Orcuttia viscida*
Plants	788	Carter's panicgrass	*Panicum fauriei var. carteri*
Plants	4179	Fickeisen plains cactus	*Pediocactus peeblesianus fickeiseniae*
Plants	795	Makou	*Peucedanum sandwicense*
Plants	1207	Wawae`iole	*Phlegmariurus (=Huperzia) mannii*
Plants	7229	No common name	*Phyllostegia hispida*
Plants	590	No common name	*Phyllostegia knudsenii*
Plants	1136	Kiponapona	*Phyllostegia racemosa*
Plants	1135	No common name	*Phyllostegia waimeae*
Plants	1138	No common name	*Phyllostegia warshaueri*
Plants	1139	No common name	*Phyllostegia wawrana*
Plants	4740	Hoawa	*Pittosporum halophilum*
Plants	3154	Ho'awa	*Pittosporum napaliense*
Plants	1140	Kuahiwi laukahi	*Plantago hawaiensis*
Plants	800	Kuahiwi laukahi	*Plantago princeps*
Plants	986	Mann's bluegrass	*Poa mannii*
Plants	801	Hawaiian bluegrass	*Poa sandvicensis*
Plants	987	No common name	*Poa siphonoglossa*
Plants	806	Po'e	*Portulaca sclerocarpa*
Plants	2619	Kopiko	*Psychotria grandiflora*

Appendix A – Methomyl "No Effect" Calls and Concurrence with "Not Likely to Adversely Affect" Calls

Taxa group	Entity ID	Common name	Scientific name
Plants	6536	Kopiko	*Psychotria hobdyi*
Plants	810	Kaulu	*Pteralyxia kauaiensis*
Plants	1202	No common name	*Pteris lidgatei*
Plants	1083	No common name	*Remya montgomeryi*
Plants	601	No common name	*Sanicula purpurea*
Plants	1065	Ma'oli'oli	*Schiedea apokremnos*
Plants	2404	No common name	*Schiedea attenuata*
Plants	1066	No common name	*Schiedea haleakalensis*
Plants	3175	Ma'oli'oli	*Schiedea hawaiiensis*
Plants	1067	No common name	*Schiedea helleri*
Plants	1147	No common name	*Schiedea kauaiensis*
Plants	10233	No common name	*Schiedea laui*
Plants	1068	No common name	*Schiedea lydgatei*
Plants	604	No common name	*Schiedea membranacea*
Plants	605	No common name	*Schiedea sarmentosa*
Plants	1071	Laulihilihi	*Schiedea stellarioides*
Plants	829	No common name	*Silene alexandri*
Plants	1001	No common name	*Silene hawaiiensis*
Plants	830	No common name	*Silene lanceolata*
Plants	4551	Marron bacora	*Solanum conocarpum*
Plants	832	Popolo ku mai	*Solanum incompletum*
Plants	1155	No common name	*Stenogyne bifida*
Plants	1156	No common name	*Stenogyne campanulata*
Plants	10234	No common name	*Stenogyne kauaulaensis*
Plants	614	California taraxacum	*Taraxacum californicum*
Plants	847	No common name	*Tetramolopium filiforme*
Plants	850	No common name	*Tetramolopium rockii*
Plants	858	Greene's tuctoria	*Tuctoria greenei*
Plants	862	No common name	*Vigna o-wahuensis*
Plants	864	No common name	*Viola helenae*
Plants	865	Nani wai'ale'ale	*Viola kauaiensis var. wahiawaensis*
Plants	868	Dwarf iliau	*Wilkesia hobdyi*
Plants	1174	Desert yellowhead	*Yermo xanthocephalus*
Plants	1159	A'e	*Zanthoxylum dipetalum var. tomentosum*
Plants	869	A'e	*Zanthoxylum hawaiiense*
Plants	870	Texas wild-rice	*Zizania texana*
Reptiles	163	St. Croix ground lizard	*Ameiva polops*

Appendix A – Methomyl "No Effect" Calls and Concurrence with "Not Likely to Adversely Affect" Calls

Taxa group	Entity ID	Common name	Scientific name
Reptiles	162	Culebra Island giant anole	*Anolis roosevelti*
Reptiles	165	Mona ground Iguana	*Cyclura stejnegeri*
Reptiles	164	Mona boa	*Epicrates monensis monensis*
Terrestrial invertebrates	1248	Hawaiian picture-wing fly	*Drosophila aglaia*
Terrestrial invertebrates	1259	Hawaiian picture-wing fly	*Drosophila differens*
Terrestrial invertebrates	1257	Hawaiian picture-wing fly	*Drosophila hemipeza*
Terrestrial invertebrates	1249	Hawaiian picture-wing fly	*Drosophila heteroneura*
Terrestrial invertebrates	1250	Hawaiian picture-wing fly	*Drosophila montgomeryi*
Terrestrial invertebrates	1251	Hawaiian picture-wing fly	*Drosophila mulli*
Terrestrial invertebrates	1252	Hawaiian picture-wing fly	*Drosophila musaphilia*
Terrestrial invertebrates	1253	Hawaiian picture-wing fly	*Drosophila neoclavisetae*
Terrestrial invertebrates	1254	Hawaiian picture-wing fly	*Drosophila obatai*
Terrestrial invertebrates	1258	Hawaiian picture-wing fly	*Drosophila ochrobasis*
Terrestrial invertebrates	7261	Hawaiian picture-wing fly	*Drosophila sharpi*
Terrestrial invertebrates	1255	Hawaiian picture-wing fly	*Drosophila substenoptera*
Terrestrial invertebrates	1256	Hawaiian picture-wing fly	*Drosophila tarphytrichia*
Terrestrial invertebrates	432	Palos Verdes blue butterfly	*Glaucopsyche lygdamus palosverdesensis*
Terrestrial invertebrates	9001	Mount Charleston blue butterfly	*Icaricia (=Plebejus) shasta charlestonensis*
Terrestrial invertebrates	446	Blackburn's sphinx moth	*Manduca blackburni*
Terrestrial invertebrates	3876	Newcomb's Tree snail	*Newcombia cumingi*
Terrestrial invertebrates	431	Oregon silverspot butterfly	*Speyeria zerene hippolyta*
Terrestrial invertebrates	2722	Qutiobaquito tryonia	*Tryonia quitobaquitae*

The EPA reached "no effect" determinations for Cooke's koki'o (*Kokia cookei*) and the soft bird's-beak (*Cordylanthus mollis* ssp. *mollis*) critical habitat. We expect exposure and consequences related to indirect toxic effects to pollinators are great enough for this species and critical habitat to warrant a "likely to adversely affect" determination and do not concur with EPA's "no effect" determinations. We analyzed effects to these species further in our Opinion.

Concurrence

The EPA also made "may affect, not likely to adversely affect" determinations for 389 threatened, endangered, proposed, and candidate species entities and 261 designated and proposed critical habitats under U.S. Fish and Wildlife Service jurisdiction for methomyl (see Tables 3-12 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, methomyl pesticide exposure 4s 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 extremely unlikely to occur. For example, exposure to methomyl 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).

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.

EFFECTS BY TAXA GROUPS

In their BE, EPA determined that their proposed action may affect, but is "not likely to adversely affect" one amphibian, five aquatic invertebrates, 24 birds, six fish, twelve mammals, 17 reptiles, 52 terrestrial invertebrates, and 272 plant species entities. They also made "not likely to adversely affect" determinations for designated or proposed critical habitats for six amphibians, three aquatic invertebrates, eight birds, seven fish, seven reptiles, four mammals, fourteen terrestrial invertebrates, and 205 plants. Based on our review of the proposed action, we concur with most of EPA's analyses and determinations. For species and critical habitats that we felt needed further effects analysis, we analyzed them further in our Opinion as described below.

Appendix A – Methomyl "No Effect" Calls and Concurrence with "Not Likely to Adversely Affect" Calls

Amphibians

The EPA made a "not likely to adversely affect" determination for one amphibian species, Wyoming toad (*Anaxyrus* (=*Bufo hemiophrys baxteri*)), and six critical habitats: the Arroyo toad (*Anaxyrus californicus*), Chiricahua leopard frog (*Rana chiricahuensis*), dusky gopher frog (*Rana sevosa*), guajón (*Eleutherodactylus cooki*), mountain yellow-legged frog (*Rana muscosa*), and Sierra Nevada yellow-legged frog (*Rana sierrae*) (Table 3). We concur with these determinations except the Arroyo toad critical habitat, Chiricahua leopard frog critical habitat, and dusky gopher frog critical habitat, which we discuss below.

Table 3. "Not likely to adversely affect" determinations for listed amphibian species and critical habitats. For three critical habitats (Entity IDs 204, 206, and 208, designated with an asterisk below), we did not concur with EPA's "not likely to adversely affect" determinations, and we analyzed them further in our Opinion.

Entity ID	**Common name**	**Scientific name**	**Species or critical habitat (CH) status**
202	Wyoming toad	*Anaxyrus (=Bufo hemiophrys) baxteri*	Endangered
204*	Arroyo (=arroyo southwestern) toad	*Anaxyrus californicus*	Final CH
206*	Chiricahua leopard frog	*Rana chiricahuensis*	Final CH
208*	Dusky gopher frog	*Rana sevosa*	Final CH
196	Guajón	*Eleutherodactylus cooki*	Final CH
1740	Mountain yellow-legged frog	*Rana muscosa*	Final CH
10517	Sierra Nevada yellow-legged frog	*Rana sierrae*	Final CH

Wyoming toads are found in herbaceous wetlands, riparian grasslands, ponds, and small seepage lakes in shortgrass communities of Laramie Basin in Albany County, Wyoming. Though agricultural lands are present in the species' range, they only overlap 0.1-0.3% of the range and we do not expect Wyoming toads to use agricultural lands as habitat. They do not move far from or within their habitat, unlike some other species of amphibians. Adult Wyoming toads eat insects, predominantly ants, and tadpoles eat algae (USFWS, 2012). While Wyoming toads may occur on methomyl use sites, we do not expect individuals will spend sufficient time on-field to be exposed to levels of methomyl that will cause measurable effects to growth, reproduction, or survival. Thus, we expect, at most, insignificant effects to the species from direct exposure to methomyl. Wyoming toads may experience offsite runoff exposure, but we do not expect predicted concentrations of methomyl in runoff will cause any measurable direct toxic effects to individuals that will adversely affect their growth, reproduction, or survival. Adverse effects to some food resources, including ants and other insects, may occur, but we do not expect methomyl use will cause any measurable effects to food or habitat resources that Wyoming toads rely on, indicating that indirect effects will be insignificant to this species.

For the guajón, mountain yellow-legged frog, and Sierra Nevada yellow-legged frog critical habitats, we do not anticipate methomyl use in agricultural areas will result in measurable reductions in the quality of the relevant PBFs. While areas of critical habitat adjacent to agricultural fields may experience offsite runoff and spray drift exposure, we expect, at most, insignificant effects to relevant PBFs will occur, even at the highest predicted concentrations in runoff. For example, water quality is a common PBF for amphibian critical habitat. Because methomyl degrades quickly in aerobic aquatic habitats (i.e., within a few days) and is not likely to persist in water bodies for long periods of time, be transported long distances in surface waters, or occur in groundwater sources, we expect effects to water quality from methomyl use will be insignificant (see the *Effects of the Action* section for more detail). As such, we expect any adverse effects to habitat PBFs and thereby critical habitat will be, at most, insignificant for these amphibians.

For the Arroyo (=Arroyo southwestern) toad, Chiricahua leopard frog, and dusky gopher frog critical habitats, we expect exposure and consequences related to toxic effects to water quality are great enough for these critical habitats to warrant "likely to adversely affect" determinations and do not concur with EPA's "not likely to adversely affect" determinations. We analyzed effects to these critical habitats further in our Opinion.

Aquatic Invertebrates (Bivalves, Crustaceans, and Snails)

The EPA made "not likely to adversely affect" determinations for five aquatic invertebrate species under Fish and Wildlife Service jurisdiction (Table 4): Tumbling Creek cavesnail (*Antrobia culveri*), Hell Creek Cave crayfish (*Cambarus zophonastes*), Panama City crayfish (*Procambarus econfinae*), Socorro isopod (*Thermosphaeroma thermophilus*), and Three Forks springsnail (*Pyrgulopsis trivialis*). The EPA also determined the proposed action "may affect but is not likely to adversely affect" critical habitat for the Tumbling Creek cavesnail (*Antrobia culveri*), Three Forks springsnail (*Pyrgulopsis trivialis*), and the diminutive amphipod (*Gammarus hyalleloides*). We concur with all these determinations except the Socorro isopod species and diminutive amphipod critical habitat, which we discuss below.

The following nine bivalves were delisted on October 17, 2023 (USFWS, 2021) and we removed them from our concurrence and consultation: yellow blossom (pearlymussel) (*Epioblasma florentina florentina*), upland combshell (*Epioblasma metastriata*), southern acornshell (*Epioblasma othcaloogensis*), green blossom (pearlymussel) (*Epioblasma torulosa gubernaculum*), tubercled blossom (pearlymussel) (*Epioblasma torulosa torulosa*; two entities), turgid blossom (pearlymussel) (*Epioblasma turgidula*; two entities), flat pigtoe (*Pleurobema marshalli*), and stirrupshell (*Quadrula stapes*).

Table 4. Not likely to adversely affect determinations for listed aquatic invertebrate species and critical habitat. For one species and one critical habitat (Entity IDs 483 and 8172, designated with an asterisk below), we did not concur with EPA's "not likely to adversely affect" determinations and we analyzed them further in our Opinion.

Entity ID	Common name	Scientific name	Species or critical habitat (CH) status
406	Tumbling Creek cavesnail	*Antrobia culveri*	Endangered
488	Hell Creek Cave crayfish	*Cambarus zophonastes*	Endangered
9386	Panama City crayfish	*Procambarus econfinae*	Threatened
4766	Three Forks springsnail	*Pyrgulopsis trivialis*	Endangered
483*	Socorro isopod	*Thermosphaeroma thermophilus*	Endangered
406	Tumbling Creek cavesnail	*Antrobia culveri*	Final CH
4766	Three Forks springsnail	*Pyrgulopsis trivialis*	Final CH
8172*	Diminutive amphipod	*Gammarus hyalleloides*	Final CH

We do not expect any of these species to occur on methomyl use sites as agricultural areas do not represent suitable habitat for them. Thus, we do not expect any individuals or their habitats to be exposed by direct spray and consider only the effects of runoff or spray drift.

The Tumbling Creek cavesnail and Hell Creek Cave crayfish occur in caves, as do their critical habitats. We do not expect exposure to cave species through groundwater penetration due to methomyl'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 methomyl to be degraded and no longer present in the water as it enters the cave. As such, we expect exposure to these species will be discountable.

The Panama City crayfish's species range was refined in 2022, and the new range does not overlap with methomyl use sites (0% overlap). As such, we expect exposure to the Panama City crayfish will be discountable.

The EPA reached a "not likely to adversely affect" determination for Socorro isopod. We expect exposure and consequences related to toxic effects to water quality are great enough for this species to warrant a "likely to adversely affect" determination and do not concur with EPA's "not likely to adversely affect" determination. The Socorro isopod is found in three areas in New Mexico, two of which are captively managed. However, individuals occurring in areas adjacent to application sites may be exposed to methomyl through runoff. We analyzed effects to this critical habitat further in our Opinion.

Given the low sensitivity of snails to other carbamates at estimated environmental concentrations (see the *Effects of the Action* section in the main biological opinion for more details), we anticipate no individuals of the Three Forks springsnail will experience any sublethal effects or mortality from exposure to methomyl. We do not expect indirect effects to food resources as the Three Forks springsnail forages on detritus. As such, we expect effects to be insignificant. In

addition, we do not anticipate methomyl use in agricultural areas will result in measurable reductions in the quality of the relevant PBFs (i.e., water quality) for the Three Forks springsnail critical habitat. Specifically, we expect any water quality changes from methomyl will be insignificant due to the low sensitivity of the species to carbamates.

The EPA reached a "not likely to adversely affect" determination for diminutive amphipod critical habitat. We expect exposure and consequences related to toxic effects to water quality are great enough for this critical habitat 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 critical habitat further in our Opinion.

Birds

The EPA made 24 "not likely to adversely affect" determinations for bird species entities (Table 5): Nihoa millerbird (old world warbler) (*Acrocephalus familiaris kingi),* Laysan duck (*Anas laysanensis*), marbled murrelet (*Brachyramphus marmoratus*), ivory-billed woodpecker (*Campephilus principalis*), white-necked crow (*Corvus leucognaphalus*), Mao (= maomao) (honeyeater) (*Gymnomyza samoensis*), California condor (*Gymnogyps californianus*; two entities), San Clemente loggerhead shrike (*Lanius ludovicianus mearnsi*), Mt. Rainier white-tailed ptarmigan (*Lagopus leucura rainierensis*), band-rumped storm-petrel (*Oceanodroma castro*), akikiki (*Oreomystis bairdi*), short-tailed albatross (*Phoebastria* (*=Diomedea*) *albatrus*), Steller's eider (*Polysticta stelleri*), Bermuda petrel (*Pterodroma cahow*), black-capped petrel (*Pterodroma hasitata*), Hawaiian petrel (*Pterodroma sandwichensis*), Newell's Townsend's shearwater (*Puffinus auricularis newelli*), thick-billed parrot (*Rhynchopsitta pachyrhyncha*), California least tern (*Sterna antillarum browni*), roseate tern (*Sterna dougallii dougallii*; two entities), Laysan finch (honeycreeper) (*Telespyza cantans*), and Nihoa finch (honeycreeper) (*Telespyza ultima*). The EPA made "not likely to adversely affect" determinations for eight bird critical habitats: 'i'iwi (*Drepanis coccinea*), California condor, crested honeycreeper (*Palmeria dolei*), Everglade snail kite (*Rostrhamus sociabilis plumbeus*), marbled murrelet, Maui parrotbill (honeycreeper) (*Pseudonestor xanthophrys*), O'ahu elepaio (*Chasiempis ibidis*), and yellow-shouldered blackbird (*Agelaius xanthomus*). We concur with their determinations except for California least tern and California condor, which we discuss below.

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*), Moloka'i 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 5. Not likely to adversely affect determinations for listed bird species and critical habitats. For three species entities (Entity IDs 66, 1737, and 96, designated with an asterisk below), we

did not concur with EPA's "not likely to adversely affect" determinations and we analyzed them further in our Opinion.

Entity ID	**Common name**	**Scientific name**	**Species or critical habitat (CH) status**
75	Nihoa millerbird (old world warbler)	*Acrocephalus familiaris kingi*	Endangered
70	Laysan duck	*Anas laysanensis*	Endangered
143	Marbled murrelet	*Brachyramphus marmoratus*	Threatened
95	Ivory-billed woodpecker	*Campephilus principalis*	Endangered
141	White-necked crow	*Corvus leucognaphalus*	Endangered
10582	Mao (= maomao) (honeyeater)	*Gymnomyza samoensis*	Endangered
66*	California condor	*Gymnogyps californianus*	Endangered
1737*	California condor	*Gymnogyps californianus*	EXPN[1]
10220	Mt. Rainier white-tailed ptarmigan	*Lagopus leucura rainierensis*	Threatened
115	San Clemente loggerhead shrike	*Lanius ludovicianus mearnsi*	Endangered
2859	Band-rumped storm-petrel	*Oceanodroma castro*	Endangered
4136	Akikiki	*Oreomystis bairdi*	Endangered
88	Short-tailed albatross	*Phoebastria (=Diomedea) albatrus*	Endangered
147	Steller's eider	*Polysticta stelleri*	Threatened
90	Bermuda petrel	*Pterodroma cahow*	Endangered
3492	Black-capped petrel	*Pterodroma hasitata*	Endangered
82	Hawaiian petrel	*Pterodroma sandwichensis*	Endangered
114	Newell's Townsend's shearwater	*Puffinus auricularis newelli*	Threatened
6345	Thick-billed parrot	*Rhynchopsitta pachyrhyncha*	Endangered
96*	California least tern	*Sterna antillarum browni*	Endangered
135	Roseate tern	*Sterna dougallii dougallii*	Endangered
136	Roseate tern	*Sterna dougallii dougallii*	Threatened

[1] EXPN = non-essential experimental population

Entity ID	Common name	Scientific name	Species or critical habitat (CH) status
71	Laysan finch (honeycreeper)	*Telespyza cantans*	Endangered
72	Nihoa finch (honeycreeper)	*Telespyza ultima*	Endangered
117	Yellow-shouldered blackbird	*Agelaius xanthomus*	Final CH
143	Marbled murrelet	*Brachyramphus marmoratus*	Final CH
150	O'ahu elepaio	*Chasiempis ibidis*	Final CH
10073	'I'iwi	*Drepanis coccinea*	Proposed CH
66	California condor	*Gymnogyps californianus*	Final CH
74	Crested honeycreeper	*Palmeria dolei*	Final CH
81	Maui parrotbill (honeycreeper)	*Pseudonestor xanthophrys*	Final CH
1221	Everglade snail kite	*Rostrhamus sociabilis plumbeus*	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 thick-billed parrot (USFWS, 2023) and white-necked crow (USFWS, 2022) are extirpated in the U.S. and its territories. We also 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 these 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 band-rumped storm petrel, Bermuda petrel, black-capped petrel, Hawaiian petrel, Newell's Townsend's shearwater, and short-tailed albatross spend the majority of their time at sea, and they do not forage or breed in agricultural areas. 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 methomyl. 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 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 likely adversely affect these species due to the likelihood of exposure being so remote as to be discountable.

The akikiki, Laysan duck, Laysan finch, Nihoa finch, Nihoa millerbird, roseate tern, San Clemente loggerhead shrike, and Steller's eider all occur in areas where agriculture is not expected to occur. As such, we expect the risk of exposure to these species and their food resources are very low. The akikiki occurs in the mountains on Kauai. The Laysan duck and Laysan finch occur on Laysan Island, Midway Atoll and Kure Atoll, part of the Papahānaumokuākea Marine National Monument. The Nihoa finch and Nihoa millerbird occur on the uninhabited island of Nihoa. North Atlantic roseate terns (entity ID 135) occur on coastal islands and barrier beaches, and Caribbean roseate terns (entity ID 136) nest on coral rocks, small offshore islands, rocks, cays, and islets. The San Clemente loggerhead shrike is found on San Clemente Island, California where the land is managed by the U.S. Navy and not expected to contain agricultural sites where methomyl is registered for use. Steller's eider is found in far northern Alaska. Therefore, we do not anticipate that the proposed action will likely adversely affect these species due to the likelihood of exposure being so remote as to be discountable.

For California condor and California least tern, 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 these species further in our Opinion.

For critical habitats, we do not anticipate methomyl use in agricultural areas will result in measurable reductions in the quality of the relevant PBFs. For California condor, yellow-shouldered blackbird, and Everglade snail kite, specific PBFs are not mentioned in the species' critical habitat rules. The California condor's primary food source is carrion, which we do not expect to be affected by methomyl use. Due to methomyl's low log K_{ow} value (1.2), we do not expect significant bioaccumulation in terrestrial and aquatic food items, and we consider potential risk from this route of exposure to be low. The Everglade snail kite's primary food source is the Florida apple snail, which we do not expect to be adversely affected by methomyl due to the low sensitivity of snails to carbamates. Water quality was also noted as a concern for the kite and its snail prey, but we do not anticipate methomyl to impact water quality because it is not persistent in the water column (hydrolysis ½ life = 2.5 days). We expect any effects to the California condor and Everglade snail kite to be insignificant. The yellow-shouldered blackbird's critical habitat does not overlap methomyl use sites, and as such, exposure is not expected. For crested honeycreeper, Maui parrotbill (honeycreeper), and marbled murrelet, PBFs are mentioned in the species' critical habitat rules, but none of the PBFs mentioned in the species critical habitat rules are relevant to the types of PBFs that we anticipate will be affected by pesticides (i.e., arthropod prey, non-arthropod prey, water quality, pollinators, host fish, and habitat function). For the Oʻahu elepaio, water quality is listed as an important feature of critical habitat, but the critical habitat does not overlap methomyl use sites. The ʻiʻiwi's critical habitats are in high-elevation forests on Hawaiʻi Island, Maui, and Kauaʻi. Seasonally flowering trees are listed as a PBF (USFWS, 2022), and bird pollinators, particularly ʻiʻiwi, are mentioned. Because methomyl use is not expected to occur in these dense forests, we expect exposure will be discountable and their critical habitat will not be affected by methomyl use.

While areas of critical habitat for these species may experience offsite runoff, spray drift exposure, and some level of adverse effects to resources that provide food and habitat to birds, we expect, at most, insignificant effects to relevant PBFs will occur.

Appendix A – Methomyl "No Effect" Calls and Concurrence with "Not Likely to Adversely Affect" Calls

Fishes

EPA made "not likely to adversely affect" determinations for six fish species entities that are under Fish and Wildlife Service jurisdiction (Table 8): Devils Hole pupfish (*Cyprinodon diabolis*), Pahranagat roundtail chub (*Gila robusta jordani*), Warm Springs pupfish (*Cyprinodon nevadensis pectoralis*), Rio Grande silvery minnow (*Hybognathus amarus*; two entities), and Zuni bluehead sucker (*Catostomus discobolus yarrow*). The EPA made seven "not likely to adversely affect" determinations for fish critical habitats: Ash Meadows speckled dace, Carolina madtom (*Noturus furiosus*), Leon Springs pupfish (*Cyprinodon bovinus*), leopard darter (*Percina pantherine*), Little Colorado spinedace (*Lepidomeda vittate*), Rio Grande silvery minnow, and Zuni bluehead sucker. We concur with the determinations for Devils Hole pupfish, Warm Springs pupfish, and Zuni bluehead sucker. We also concur with the determinations for the Ash Meadows speckled dace and Little Colorado spinedace critical habitats. For the others, we do not concur with the EPA's "not likely to adversely affect" determinations and discuss below.

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

Table 6. Not likely to adversely affect determinations for listed fish species and critical habitat. For three species entities (Entity IDs 226, 309, and 10052, designated with an asterisk below) and five critical habitats (Entity IDs 5288, 251, 238, 309, and 3280, designated with an asterisk below), we did not concur with EPA's "not likely to adversely affect" determinations and we analyzed them further in our Opinion.

Entity ID	**Common name**	**Scientific name**	**Species or critical habitat (CH) status**
3280	Zuni bluehead sucker	*Catostomus discobolus yarrow*	Endangered
217	Devils Hole pupfish	*Cyprinodon diabolis*	Endangered
231	Warm Springs pupfish	*Cyprinodon nevadensis pectoralis*	Endangered
226*	Pahranagat roundtail chub	*Gila robusta jordani*	Endangered
309*	Rio Grande silvery minnow	*Hybognathus amarus*	Endangered
10052*	Rio Grande silvery minnow	*Hybognathus amarus*	EXPN[2]
3280*	Zuni bluehead sucker	*Catostomus discobolus yarrow*	Final CH
2518*	Leon Springs pupfish	*Cyprinodon bovinus*	Final CH

[2] EXPN = non-essential experimental population

Entity ID	Common name	Scientific name	Species or critical habitat (CH) status
309*	Rio Grande silvery minnow	*Hybognathus amarus*	Final CH
281	Little Colorado spinedace	*Lepidomeda vittata*	Final CH
5288*	Carolina madtom	*Noturus furiosus*	Final CH
238*	Leopard darter	*Percina pantherina*	Final CH
264	Ash Meadows speckled dace	*Rhinichthys osculus nevadensis*	Final CH

Given the aquatic habitat requirements for listed fish, none of these species will occur on application sites, which suggests there is no risk of consequences resulting from on-field exposure, though exposure to listed fish may occur off-field through runoff. The action area overlaps less than 1% of the species' ranges for the Devils Hole pupfish and Warm Springs pupfish. Most of the Devils Hole pupfish's range (94.88%) and all the Warm Springs pupfish's range (100%) occur on federal lands, where we expect minimal, if any, agriculture or methomyl use to occur. The Zuni bluehead sucker's range overlaps very few agricultural areas, but the fish is found in waterways that are not near agriculture. We expect discountable exposure from methomyl use in these agricultural lands.

The EPA reached "not likely to adversely affect" determinations for Pahranagat roundtail chub and Rio Grande silvery minnow (two entities). We expect exposure and consequences related to indirect toxic effects to prey and water quality are great enough for these species to warrant "likely to adversely affect" determinations and do not concur with EPA's "not likely to adversely affect" determinations. We analyzed effects to these species further in our Opinion.

For critical habitat, we do not anticipate methomyl use in agricultural areas will result in measurable reductions in the quality of the relevant PBFs. The Little Colorado spinedace's critical habitat does not overlap methomyl use sites. The Ash Meadows speckled dace relies on arthropod prey that could be affected by exposure to methomyl, but 100% of the critical habitat occurs on federal lands, where we expect minimal, if any, agriculture or methomyl use to occur leading to insignificant effects to its prey. For example, water quality is a common PBF for fish critical habitat. Because methomyl degrades quickly in aerobic aquatic habitats (i.e., within a few days) and is not likely to persist in water bodies for long periods of time, be transported long distances in surface waters, or occur in groundwater sources, we expect effects to water quality from methomyl use will be insignificant (see the *Effects of the Action* section for more detail). As such, we expect any adverse effects to habitat PBFs and thereby critical habitat for these species will be, at most, insignificant.

The Carolina madtom's critical habitat is primarily on private lands and both water quality and arthropod prey are listed as PBFs important for the critical habitat. Neither the Leon Springs pupfish nor the leopard darter have specific PBFs identified in their critical habitat rules. Leon Springs pupfish feed on diatoms, marl, algae, aquatic insects, amphipods, and gastropods, so their prey base may be affected by methomyl use on agricultural areas near their critical habitat.

Methomyl use sites overlap 0.3% of the Leon Springs pupfish critical habitat and past usage on this area is 0%, but the critical habitat is only 27.8 acres (0.3% = 0.0834 acres). Leopard darters forage mostly on microcrustaceans and immature aquatic insects, and water quality is very important to this species. Pesticides and fertilizers are mentioned as threats to water quality in leopard darter habitat. The Rio Grande silvery minnow requires water of sufficient quality and may be affected by the agriculture prevalent around the middle Rio Grande, pesticides from which were mentioned as a concern in the critical habitat rule. Methomyl use sites overlap more than 8% of the minnow’s critical habitat. The Zuni bluehead sucker critical habitat is primarily on National Forest Service lands (94.68%), where we expect methomyl use to be minimal. However, the critical habitat is small across two units (31 mi total) and most of the non-federal portion is under private ownership and used for agriculture. Therefore, we do not concur with the “not likely to adversely affect” determinations for Carolina madtom, Leon Springs pupfish, leopard darter, Rio Grande silvery minnow, or Zuni bluehead sucker critical habitats. We expect exposure and consequences related to indirect toxic effects to water quality and arthropod prey are great enough for these critical habitats to warrant “likely to adversely affect” determinations. We analyzed effects to these species further in our Opinion.

Mammals

The EPA made “not likely to adversely affect” determinations for 12 mammals species under Fish and Wildlife Service jurisdiction (Table 6): wood bison (*Bison bison athabascae*), red wolf (*Canis rufus*), northern sea otter (*Enhydra lutris kenyoni*), southern sea otter (*Enhydra lutris nereis*), Sinaloan jaguarundi (*Herpailurus* (*=Felis*) *yagouaroundi* toltieca), silver rice rat (*Oryzomys palustris natator*), Sierra Nevada bighorn sheep (*Ovis canadensis sierrae*), jaguar (*Panthera onca*), Pacific pocket mouse (*Perognathus longimembris pacificus*), Lower Keys marsh rabbit (*Sylvilagus palustris hefneri*), Santa Catalina Island fox (*Urocyon littoralis catalinae*), and polar bear (*Ursus maritimus*). The EPA determined the proposed action may affect, but is “not likely to adversely affect,” critical habitat for the northern sea otter, peninsular bighorn sheep (*Ovis canadensis nelsoni*), Sierra Nevada bighorn sheep, and jaguar. We concur with most of these determinations. For red wolf and jaguar, we do not concur with the EPA’s “not likely to adversely affect” species determinations and discuss below.

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

Table 7. Not likely to adversely affect determinations for listed and proposed mammal species and critical habitat. For two species (Entity IDs 14 and 18, designated with an asterisk below), we did not concur with EPA’s "not likely to adversely affect" determinations and we analyzed them further in our Opinion.

Entity ID	Common name	Scientific name	Species or critical habitat (CH) status
6654	Wood bison	*Bison bison athabascae*	Threatened

Appendix A – Methomyl "No Effect" Calls and Concurrence with "Not Likely to Adversely Affect" Calls

Entity ID	Common name	Scientific name	Species or critical habitat (CH) status
11670	Wood bison	*Bison bison athabascae*	EXPN[3]
14*	Red wolf	*Canis rufus*	Endangered
5232	Northern sea otter	*Enhydra lutris kenyoni*	Threatened
45	Southern sea otter	*Enhydra lutris nereis*	Threatened
23	Sinaloan jaguarundi	*Herpailurus (=Felis) yagouaroundi tolteca*	Endangered
29	Silver rice rat	*Oryzomys palustris natator*	Endangered
57	Sierra Nevada bighorn sheep	*Ovis canadensis sierrae*	Endangered
18*	Jaguar	*Panthera onca*	Endangered
51	Pacific pocket mouse	*Perognathus longimembris pacificus*	Endangered
46	Lower Keys marsh rabbit	*Sylvilagus palustris hefneri*	Endangered
1237	Santa Catalina Island fox	*Urocyon littoralis catalinae*	Threatened
8861	Polar bear	*Ursus maritimus*	Threatened
5232	Northern sea otter	*Enhydra lutris kenyoni*	Final CH
56	Peninsular bighorn sheep	*Ovis canadensis nelsoni*	Final CH
57	Sierra Nevada bighorn sheep	*Ovis canadensis sierrae*	Final CH
18	Jaguar	*Panthera onca*	Final CH

The action area overlaps a very small portion of the species' range (<0.5% overlap) for the Lower Keys marsh rabbit, Pacific pocket mouse, Santa Catalina Island fox, Sierra Nevada bighorn sheep, and silver rice rat. In these small portions of the range, these species may occur on or adjacent to methomyl use sites and forage on contaminated dietary items, resulting in occasional exposure to methomyl. However, we do not expect these species to be exposed to methomyl at levels that will cause measurable adverse effects to individuals (i.e., insignificant). In addition, we expect effects to food resources for these species to be insignificant. Several of these species are herbivores (i.e., Lower Keys marsh rabbit, Pacific pocket mouse, and Sierra Nevada bighorn sheep) and we do not expect direct adverse effects to plants from methomyl exposure. The Santa Catalina Island fox eats fruits, rodents, ground-nesting birds, and arthropods. The silver rice rat eats plants, insects, and crabs (USFWS, 1999). While we anticipate that methomyl 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 other prey species. Because the fox and the rat are generalists that can forage on a variety of food

[3] EXPN = non-essential experimental population

items, we expect any loss of arthropods to result in no more than insignificant effects to these species.

For the Sinaloan jaguarundi and the wood bison, the action area does not overlap with the species range, and therefore no exposure is expected to occur to individuals or their habitat.

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

For red wolf and jaguar, 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 these species further in our Opinion.

For critical habitats, we do not anticipate methomyl use in agricultural areas will result in measurable reductions in the quality of the relevant PBFs. For jaguar, Sierra Nevada bighorn sheep, and peninsular bighorn sheep, PBFs are mentioned in the species' critical habitat rules, but none are relevant to the types of PBFs that we anticipate will be affected by pesticides (i.e., arthropod prey, non-arthropod prey, water quality, pollinators, host fish, habitat function). Even so, the action area overlaps only 0.2% of the jaguar's critical habitat and none of the peninsular bighorn sheep or Sierra Nevada bighorn sheep critical habitat. None of the critical habitats have been treated with methomyl in the past. 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 methomyl use in or near the species critical habitat due to its remoteness and lack of agriculture in this area of southwest Alaska. As such, we expect the likelihood of exposure being so remote as to be discountable.

The EPA reached "not likely to adversely affect" determinations for the red wolf and jaguar. We expect exposure and consequences related to direct toxic effects and effects to key food and habitat resources are great enough for both species to warrant a "likely to adversely affect" determination and do not concur with EPA's "not likely to adversely affect" determinations for these species. We analyzed effects to these species further in our Opinion.

Reptiles

The EPA made "not likely to adversely affect" determinations for 17 reptile species entities (Table 7): loggerhead sea turtle (*Caretta caretta*), green sea turtle (*Chelonia mydas*; six entities), leatherback sea turtle (*Dermochelys coriacea*), hawksbill sea turtle (*Eretmochelys imbricata*), desert tortoise (*Gopherus agassizii*), gopher tortoise (*Gopherus polyphemus*; two entities),

Sonoyta mud turtle (*Kinosternon sonoriense longifemorale*), Kemp's ridley sea turtle (*Lepidochelys kempii*), olive ridley sea turtle (*Lepidochelys olivacea*; two entities), and Alabama red-bellied turtle (*Pseudemys alabamensis*). The EPA also determined the proposed action may affect but is "not likely to adversely affect" black pinesnake (*Pituophis melanoleucus lodingi*), loggerhead sea turtle, green sea turtle, New Mexican ridge-nosed rattlesnake (*Crotalus willardi obscurus*), leatherback sea turtle, hawksbill sea turtle, and desert tortoise critical habitat. We concur with most of these determinations. For desert tortoise and gopher tortoise, we do not concur with the EPA's "not likely to adversely affect" species determinations. We also do not concur with EPA's "not likely to adversely affect" determination for black pinesnake critical habitat and discuss below.

Table 8. Not likely to adversely affect determinations for listed and candidate reptile species and critical habitat. For three species entities (Entity IDs 185, 181, and 3532, designated with an asterisk below) and one critical habitat (Entity ID 6097, designated with an asterisk below), we did not concur with EPA's "not likely to adversely affect" determinations and we analyzed them further in our Opinion.

Entity ID	**Common name**	**Scientific name**	**Species or critical habitat (CH) status**
9707	Loggerhead sea turtle	*Caretta caretta*	Threatened
10485	Green sea turtle	*Chelonia mydas*	Threatened
11175	Green sea turtle	*Chelonia mydas*	Endangered
11176	Green sea turtle	*Chelonia mydas*	Endangered
11191	Green sea turtle	*Chelonia mydas*	Threatened
11192	Green sea turtle	*Chelonia mydas*	Threatened
11193	Green sea turtle	*Chelonia mydas*	Threatened
154	Leatherback sea turtle	*Dermochelys coriacea*	Endangered
153	Hawksbill sea turtle	*Eretmochelys imbricata*	Endangered
185*	Desert tortoise	*Gopherus agassizii*	Threatened
181*	Gopher tortoise (Western DPS)	*Gopherus polyphemus*	Threatened
3532*	Gopher tortoise (Eastern DPS)	*Gopherus polyphemus*	Candidate
6620	Sonoyta mud turtle	*Kinosternon sonoriense longifemorale*	Endangered
155	Kemp's ridley sea turtle	*Lepidochelys kempii*	Endangered
160	Olive ridley sea turtle	*Lepidochelys olivacea*	Threatened
5989	Olive ridley sea turtle	*Lepidochelys olivacea*	Endangered
168	Alabama red-belly turtle	*Pseudemys alabamensis*	Endangered
9707	Loggerhead sea turtle	*Caretta caretta*	Final CH
11192	Green sea turtle	*Chelonia mydas*	Proposed CH

Entity ID	Common name	Scientific name	Species or critical habitat (CH) status
10485	Green sea turtle	*Chelonia mydas*	Proposed CH
11176	Green sea turtle	*Chelonia mydas*	Proposed CH
11175	Green sea turtle	*Chelonia mydas*	Proposed CH
11193	Green sea turtle	*Chelonia mydas*	Proposed CH
166	New Mexican ridge-nosed rattlesnake	*Crotalus willardi obscurus*	Final CH
154	Leatherback sea turtle	*Dermochelys coriacea*	Final CH
153	Hawksbill sea turtle	*Eretmochelys imbricata*	Final CH
185	Desert tortoise	*Gopherus agassizii*	Final CH
6097*	Black pine snake	*Pituophis melanoleucus lodingi*	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 Hawai'i) uses beaches to bask. We anticipate sea turtles are likely exposed through contact with spray drift or through 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 insignificant levels of adverse effect. Similarly, we do not expect dietary exposure will cause more than insignificant levels of adverse effects as we do not expect methomyl will accumulate in marine prey items. Because sea turtles do not forage while on land, we do not expect dietary exposure while in terrestrial habitats. We expect insignificant effects from changes in prey base from methomyl use because the species' foraging areas are in the marine environment where methomyl 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 from nearby agricultural fields depositing on top of nests then penetrating through sand to contact egg surfaces to result in 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 United States is entirely on lands managed by the National Park Service (Quitobaquito Springs, Organ Pipe Cactus National Monument) where we expect minimal use of methomyl (USFWS, 2017). Therefore, we expect any direct or indirect effects from methomyl exposure will be insignificant to this species.

The Alabama red-bellied turtle is found in broad, vegetated expanses of shallow water in the backwater areas of bay, in and along river channels, in oxbow lakes, and in fresh to brackish marshes. Its diet is entirely aquatic plants. We do not expect this species to occur on agricultural fields, so the only route of exposure will be through runoff. We do not expect predicted concentrations of methomyl in runoff will cause any measurable direct toxic effects to individuals that will adversely affect their growth, reproduction, or survival. Similarly, we do not expect methomyl use will cause any measurable effects to food or habitat resources that Alabama red-bellied turtles rely on, indicating that indirect effects will be insignificant to this species. For desert tortoise and the western DPS of gopher tortoise, we expect exposure and consequences related to indirect toxic effects are great enough to warrant "likely to adversely affect" determinations and do not concur with EPA's "not likely to adversely affect" determinations. We analyzed effects to these 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).

For critical habitats, we do not anticipate methomyl use in agricultural areas will result in measurable reductions in the quality of the relevant PBFs. For green sea turtle, hawksbill sea turtle, leatherback sea turtle, and New Mexican ridge-nosed rattlesnake, specific PBFs are not mentioned in the species' critical habitat rules. 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. We do not expect any of these prey items to be present on the sea turtles' terrestrial critical habitat, so we consider exposure for sea turtle prey items from methomyl use to be discountable. The action area does not overlap with the New Mexican ridge-nosed rattlesnake's critical habitat (0% overlap). For desert tortoise and loggerhead sea turtle, PBFs are mentioned in the species' critical habitat rules, but none are relevant to the types of PBFs that we anticipate will be affected by pesticides (i.e., arthropod prey, non-arthropod prey, water quality, pollinators, host fish, habitat function). In addition, the action area does not overlap with the desert tortoise's critical habitat (0% overlap).

For the black pinesnake, arthropod and non-arthropod prey are listed as important features of critical habitat. Because we expect methomyl will affect these PBFs and we do not have overlap or past usage information, so we do not concur with EPA's "not likely to adversely affect" determination. In addition, we expect exposure and consequences related to direct toxic effects and effects to key food and habitat resources are great enough for the desert tortoise and gopher tortoise to warrant a "likely to adversely affect" determination and do not concur with EPA's "not likely to adversely affect" determinations for these species. We analyzed effects to black pinesnake critical habitat, desert tortoise, and gopher tortoise further in our Opinion.

Terrestrial Invertebrates (Insects, Snails)

The EPA made "not likely to adversely affect" determinations for 52 terrestrial invertebrate species (see Table 10). The EPA also determined the proposed action may affect but is "not likely to adversely affect" critical habitat for 14 terrestrial invertebrates. For crimson Hawaiian damselfly, Delhi Sands flower-loving fly, and oceanic Hawaiian damselfly, we do not concur

with the EPA’s “not likely to adversely affect” species determinations and discuss below. We concur with the other “not likely to adversely affect” determinations for terrestrial invertebrates.

The Braken Bat Cave meshweaver was delisted due to a data error on August 24, 2022 (USFWS, 2022), and we removed the species as its critical habitat from our concurrence.

Table 9. Not likely to adversely affect determinations for listed terrestrial invertebrate species and critical habitat. For three species (Entity IDs 4326, 452, and 6231, designated with an asterisk below), we did not concur with EPA’s "not likely to adversely affect" determinations and we analyzed them further in our Opinion.

Entity ID	**Common name**	**Scientific name**	**Species or critical habitat (CH) status**
9459	O‘ahu tree snail	*Achatinella abbreviata*	Endangered
9405	O‘ahu tree snail	*Achatinella concavospira*	Endangered
9441	O‘ahu tree snail	*Achatinella elegans*	Endangered
9403	O‘ahu tree snail	*Achatinella fulgens*	Endangered
9413	O‘ahu tree snail	*Achatinella fuscobasis*	Endangered
9469	O‘ahu tree snail	*Achatinella lorata*	Endangered
9399	O‘ahu tree snail	*Achatinella mustelina*	Endangered
9471	O‘ahu tree snail	*Achatinella phaeozona*	Endangered
9473	O‘ahu tree snail	*Achatinella pupukanioe*	Endangered
9475	O‘ahu tree snail	*Achatinella taeniolata*	Endangered
9477	O‘ahu tree snail	*Achatinella turgida*	Endangered
9479	O‘ahu tree snail	*Achatinella viridans*	Endangered
9483	O‘ahu tree snail	*Achatinella vulpina*	Endangered
463	Kauai cave wolf or pe‘e pe‘e maka ‘ole spider	*Adelocosa anops*	Endangered
393	Painted snake coiled forest snail	*Anguispira picta*	Threatened
447	Coffin Cave mold beetle	*Batrisodes texanus*	Endangered
460	Helotes mold beetle	*Batrisodes venyivi*	Endangered
472	Robber Baron Cave meshweaver	*Cicurina baronia*	Endangered
471	Madla Cave Meshweaver	*Cicurina madla*	Endangered
473	Government Canyon Bat Cave meshweaver	*Cicurina vespera*	Endangered
7918	Snail [no common name]	*Eua zebrina*	Endangered
419	El Segundo blue butterfly	*Euphilotes battoides allyni*	Endangered
432	Palos Verdes blue butterfly	*Glaucopsyche lygdamus palosverdesensis*	Endangered
434	Pawnee montane skipper	*Hesperia leonardus montana*	Threatened

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Entity ID	Common name	Scientific name	Species or critical habitat (CH) status
4413	Assimulans yellow-faced bee	*Hylaeus assimulans*	Endangered
6747	Easy yellow-faced bee	*Hylaeus facilis*	Endangered
5333	Hawaiian yellow-faced bee	*Hylaeus longiceps*	Endangered
4326*	Crimson Hawaiian damselfly	*Megalagrion leptodemas*	Endangered
2144	Flying earwig Hawaiian damselfly	*Megalagrion nesiotes*	Endangered
1361	Blackline Hawaiian damselfly	*Megalagrion nigrohamatum nigrolineatum*	Endangered
6231*	Oceanic Hawaiian damselfly	*Megalagrion oceanicum*	Endangered
6867	Orangeblack Hawaiian damselfly	*Megalagrion xanthomelas*	Endangered
392	noonday snail	*Mesodon clarki nantahala*	Threatened
468	Spruce-fir moss spider	*Microhexura montivaga*	Endangered
470	Government Canyon Bat Cave spider	*Neoleptoneta microps*	Endangered
467	Tooth Cave spider	*Neoleptoneta myopica*	Endangered
3876	Newcomb's tree snail	*Newcombia cumingi*	Endangered
3224	Snail [no common name]	*Ostodes strigatus*	Endangered
2364	Humped tree snail	*Partula gibba*	Endangered
7907	Guam tree snail	*Partula radiolata*	Endangered
451	Laguna Mountains skipper	*Pyrgus ruralis lagunae*	Endangered
461	[no common name] beetle	*Rhadine exilis*	Endangered
459	[no common name] beetle	*Rhadine infernalis*	Endangered
449	Tooth Cave ground beetle	*Rhadine persephone*	Endangered
452*	Delhi Sands flower-loving fly	*Rhaphiomidas terminatus abdominalis*	Endangered
1862	Fragile tree snail	*Samoana fragilis*	Endangered
389	Chittenango ovate amber snail	*Succinea chittenangoensis*	Threatened
466	Tooth Cave pseudoscorpion	*Tartarocreagris texana*	Endangered
448	Kretschmarr Cave mold beetle	*Texamaurops reddelli*	Endangered
469	Cokendolpher Cave harvestman	*Texella cokendolpheri*	Endangered
464	Bee Creek Cave harvestman	*Texella reddelli*	Endangered
465	Bone Cave harvestman	*Texella reyesi*	Endangered
463	Kauai cave wolf or pe‘e pe‘e maka ‘ole spider	*Adelocosa anops*	Final CH
460	Helotes mold beetle	*Batrisodes venyivi*	Final CH
472	Robber Baron Cave meshweaver	*Cicurina baronia*	Final CH

Entity ID	Common name	Scientific name	Species or critical habitat (CH) status
471	Madla Cave meshweaver	*Cicurina madla*	Final CH
473	Government Canyon Bat Cave meshweaver	*Cicurina vespera*	Final CH
4326	Crimson Hawaiian damselfly	*Megalagrion leptodemas*	Final CH
1361	Blackline Hawaiian damselfly	*Megalagrion nigrohamatum nigrolineatum*	Final CH
6231	Oceanic Hawaiian damselfly	*Megalagrion oceanicum*	Final CH
468	Spruce-fir moss spider	*Microhexura montivaga*	Final CH
470	Government Canyon Bat Cave spider	*Neoleptoneta microps*	Final CH
451	Laguna Mountains skipper	*Pyrgus ruralis lagunae*	Final CH
461	[no common name] beetle	*Rhadine exilis*	Final CH
459	[no common name] beetle	*Rhadine infernalis*	Final CH
469	Cokendolpher Cave harvestman	*Texella cokendolpheri*	Final CH

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, Kauai cave wolf spider, 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 methomyl'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 methomyl 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 other carbamates at estimated environmental concentrations (see the *Effects of the Action* section in the main biological opinion for more details), we use those data as a surrogate for methomyl toxicity. Thus, we anticipate no individuals of the Chittenango ovate amber snail, fragile tree snail, Guam tree snail, humped tree snail, Newcomb's tree snail, noonday snail, O'ahu tree snail, painted snake coiled forest snail, *Eua* snail, or *Ostodes* snail will be adversely impacted from exposure to or sublethal effects from methomyl. As such, we expect any exposure to methomyl to result in insignificant effects.

The spruce-fir moss spider and Laguna Mountains skipper are found in high-elevation mountainous areas where we do not expect agriculture to occur. Similarly, Palos Verdes blue butterfly occurs in early successional coastal sage scrub habitat, some of which is protected under the Rancho Palos Verdes Habitat Conservation Plan until 2070. All extant populations are on protected areas (reserves and a city park) or Department of Defense lands where we do not expect agriculture to occur. The Assimulans yellow-faced bee, easy yellow-faced bee, and Hawaiian yellow-faced bee occur in montane forests on Hawaiian Islands in areas where we do

not expect agriculture to occur. We do not expect these species to occur on or near methomyl use sites as agricultural areas do not represent suitable habitat for them and their habitats occur in areas that we expect to be at least 30 m from agricultural areas (i.e., away from spray drift). Thus, we expect the likelihood of any individuals of these species being exposed by direct spray or spray drift to be so remote as to be discountable.

The Delhi Sands flower-loving fly is found in inland desert valleys, rivers, deltas, and beach strands in San Bernardino County, California; though some habitat fragments are protected, others are not and occur near agricultural lands. We believe this species warrants a "likely to adversely affect" determination and do not concur with EPA's "not likely to adversely affect" determination. We analyzed effects to the Delhi Sands flower-loving fly further in our Opinion.

The blackline Hawaiian damselfly, crimson Hawaiian damselfly, flying earwig Hawaiian damselfly, oceanic Hawaiian damselfly, and orangeblack Hawaiian damselfly are found in mountainous areas of Hawaii, and pesticides are mentioned as specific threats to these species. For the blackline Hawaiian damselfly and orangeblack Hawaiian damselfly, the action area does not overlap their range. The flying earwig Hawaiian damselfly has not been seen in the wild since 2005, despite targeted surveys, and historically, they were found in forests where we do not expect agricultural pesticides will be used. The action area overlaps crimson Hawaiian damselfly and oceanic Hawaiian damselfly species' ranges, we expect exposure will occur, and direct mortality will occur if an individual is exposed to methomyl. Thus, we believe these two species warrant "likely to adversely affect" determinations and do not concur with EPA's "not likely to adversely affect" determinations. We analyzed effects to these species further in our Opinion.

For critical habitats, we do not anticipate methomyl use in agricultural areas will result in measurable reductions in the quality of the relevant PBFs. The action area does not overlap blackline Hawaiian damselfly, crimson Hawaiian damselfly, and oceanic Hawaiian damselfly critical habitats (0% overlap), so we do not expect these critical habitats will be exposed to methomyl. Though the critical habitats for cave species (two *Rhadine* beetles, 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 methomyl'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 methomyl to be degraded and no longer present in the water as it enters the cave. The Laguna Mountains skipper critical habitat rule includes host plants as a relevant PBF, but we do not expect direct toxicity to plants from methomyl. Similarly, the spruce-fir moss spider critical habitat rule mentions that the critical habitat may be affected by pesticide or herbicide use for controlling noxious species (i.e., habitat function), which we also do not expect to be affected by methomyl use due to the habitat's distance from agricultural areas. Both Laguna Mountains skipper and spruce-fir moss spider critical habitats are in mountainous areas and the spruce-fir moss spider critical habitat is entirely on federal lands where we expect minimal, if any, agriculture or methomyl use to occur. As such, we expect any adverse effects to habitat PBFs and thereby critical habitat will be, at most, insignificant for these invertebrates.

Plants

The EPA made "not likely to adversely affect" determinations for 272 plant species and 205 plant critical habitats (see Table 9). We concur with these determinations except for a five species (*Arctostaphylos glandulosa* ssp. *crassifolia*, *Euphorbia remyi* var. *remyi*, *Gardenia brighamii*, *Ochrosia haleakalae*, and *Tetramolopium remyi*) and five critical habitats (*Astragalus holmgreniorum*, *Astragalus pycnostachyus* var. *lanosissimus*, *Chorizanthe robusta* var. *hartwegii*, *Deinandra* (=*Hemizonia*) *conjugens*, and *Polygonum hickmanii*); for these, we do not concur with the EPA's "not likely to adversely affect" determinations and discuss below.

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), and *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 10. Not likely to adversely affect determinations for listed and proposed flowering plant species and critical habitat. For five species (Entity IDs 502, 1607, 715, 7067, and 849, designated with an asterisk below) and five critical habitats (Entity IDs 1020, 511, 1378, 559, and 1267, designated with an asterisk below), we did not concur with EPA's "not likely to adversely affect" determinations, and we analyzed them further in our Opinion.

Entity ID	Common name	Scientific name	Species or critical habitat (CH) status
616	No common name	*Abutilon eremitopetalum*	Endangered
617	Ko'oloa'ula	*Abutilon menziesii*	Endangered
618	No common name	*Abutilon sandwicense*	Endangered
497	No common name	*Achyranthes mutica*	Endangered
620	Northern wild monkshood	*Aconitum noveboracense*	Threatened
621	Mahoe	*Alectryon macrococcus*	Endangered
499	No common name	*Amaranthus brownii*	Endangered
501	Hoffmann's rock-cress	*Arabis hoffmannii*	Endangered
2823	Franciscan manzanita	*Arctostaphylos franciscana*	Endangered
502*	Del Mar manzanita	*Arctostaphylos glandulosa ssp. crassifolia*	Endangered
632	Presidio Manzanita	*Arctostaphylos hookeri var. ravenii*	Endangered
506	Bear Valley sandwort	*Arenaria ursina*	Threatened

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Entity ID	Common name	Scientific name	Species or critical habitat (CH) status
635	Ahinahina	*Argyroxiphium sandwicense ssp. macrocephalum*	Threatened
884	Welsh's milkweed	*Asclepias welshii*	Threatened
638	Sentry milk-vetch	*Astragalus cremnophylax var. cremnophylax*	Endangered
641	Ash meadows milk-vetch	*Astragalus phoenix*	Threatened
511	Ventura marsh milk-vetch	*Astragalus pycnostachyus var. lanosissimus*	Endangered
1089	Triple-ribbed milk-vetch	*Astragalus tricarinatus*	Endangered
1090	San Jacinto Valley crownscale	*Atriplex coronata var. notatior*	Endangered
1091	No common name	*Auerodendron pauciflorum*	Endangered
515	Island Barberry	*Berberis pinnata ssp. insularis*	Endangered
644	Virginia round-leaf birch	*Betula uber*	Threatened
2278	Ko'oko'olau	*Bidens amplectens*	Endangered
7617	Ko'oko'olau	*Bidens campylotheca ssp. pentamera*	Endangered
645	Ko'oko'olau	*Bidens micrantha ssp. kalealaha*	Endangered
646	Ko'oko'olau	*Bidens wiebkei*	Endangered
648	No common name	*Bonamia menziesii*	Endangered
650	Pua 'ala	*Brighamia rockii*	Endangered
894	Capa rosa	*Callicarpa ampla*	Endangered
895	No common name	*Calyptranthes thomasiana*	Endangered
896	Palma de manaca	*Calyptronoma rivalis*	Threatened
654	Awikiwiki	*Canavalia molokaiensis*	Endangered
523	Ash-grey paintbrush	*Castilleja cinerea*	Threatened
1092	No common name	*Catesbaea melanocarpa*	Endangered
659	Kamanomano	*Cenchrus agrimonioides*	Endangered
660	Spring-loving centaury	*Centaurium namophilum*	Threatened
526	Catalina Island mountain-mahogany	*Cercocarpus traskiae*	Endangered
902	Howell's spineflower	*Chorizanthe howellii*	Endangered
529	Orcutt's spineflower	*Chorizanthe orcuttiana*	Endangered
1219	Florida perforate cladonia	*Cladonia perforata*	Endangered
671	Oha wai	*Clermontia lindseyana*	Endangered
1098	Oha wai	*Clermontia oblongifolia ssp. mauiensis*	Endangered
672	Oha wai	*Clermontia peleana*	Endangered

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Entity ID	Common name	Scientific name	Species or critical habitat (CH) status
674	Kauila	*Colubrina oppositifolia*	Endangered
1165	Etonia rosemary	*Conradina etonia*	Endangered
1525	Florida semaphore cactus	*Consolea corallicola*	Endangered
908	No common name	*Cordia bellonis*	Endangered
909	Palo de nigua	*Cornutia obovata*	Endangered
1160	No common name	*Cranichis ricartii*	Endangered
1175	Haha	*Cyanea acuminata*	Endangered
1099	Haha	*Cyanea asarifolia*	Endangered
7892	Haha	*Cyanea asplenifolia*	Endangered
3540	Haha	*Cyanea calycina*	Endangered
1224	Haha	*Cyanea crispa*	Endangered
1278	Haha	*Cyanea eleeleensis*	Endangered
684	Haha	*Cyanea grimesiana ssp. grimesiana*	Endangered
1049	Haha	*Cyanea grimesiana ssp. obatae*	Endangered
1050	Haha	*Cyanea hamatiflora ssp. carlsonii*	Endangered
1186	Haha	*Cyanea hamatiflora ssp. hamatiflora*	Endangered
10223	Haha nui	*Cyanea horrida*	Endangered
535	Haha	*Cyanea humboldtiana*	Endangered
10588	No common name	*Cyanea kauaulaensis*	Endangered
1181	Haha	*Cyanea koolauensis*	Endangered
6019	Haha	*Cyanea lanceolata*	Endangered
1051	Haha	*Cyanea lobata*	Endangered
1182	Haha	*Cyanea longiflora*	Endangered
10224	Haha	*Cyanea magnicalyx*	Endangered
10225	Haha	*Cyanea maritae*	Endangered
6969	Haha	*Cyanea marksii*	Endangered
685	Haha	*Cyanea mceldowneyi*	Endangered
2860	Haha	*Cyanea obtusa*	Endangered
916	Aku'aku	*Cyanea platyphylla*	Endangered
1636	No common name	*Cyanea purpurellifolia*	Endangered
917	Haha	*Cyanea stictophylla*	Endangered
688	Haha	*Cyanea superba*	Endangered
1106	Haha	*Cyanea truncata*	Endangered
1032	No common name	*Cyperus pennatiformis*	Endangered
918	Ha'iwale	*Cyrtandra crenata*	Endangered
536	Ha'iwale	*Cyrtandra dentata*	Endangered

Entity ID	Common name	Scientific name	Species or critical habitat (CH) status
2085	Ha'iwale	*Cyrtandra filipes*	Endangered
919	Ha'iwale	*Cyrtandra giffardii*	Endangered
8347	Haiwale	*Cyrtandra gracilis*	Endangered
4201	Ha'iwale	*Cyrtandra kaulantha*	Endangered
1230	Ha'iwale	*Cyrtandra munroi*	Endangered
690	Ha'iwale	*Cyrtandra polyantha*	Endangered
691	Ha'iwale	*Cyrtandra subumbellata*	Endangered
1111	Ha'iwale	*Cyrtandra tintinnabula*	Endangered
10481	Haiwale	*Cyrtandra wagneri*	Endangered
5991	Haiwale	*Cyrtandra waiolani*	Endangered
692	No common name	*Delissea rhytidosperma*	Endangered
693	Oha	*Delissea subcordata*	Endangered
538	No common name	*Delissea undulata*	Endangered
1054	Na'ena'e	*Dubautia herbstobatae*	Endangered
697	Koholapehu	*Dubautia latifolia*	Endangered
1114	Na'ena'e	*Dubautia plantaginea ssp. humilis*	Endangered
3049	Na'ena'e	*Dubautia plantaginea ssp. magnifolia*	Endangered
544	Laguna Beach liveforever	*Dudleya stolonifera*	Threatened
926	Ash Meadows sunray	*Enceliopsis nudicaulis var. corrugata*	Threatened
545	Fosberg's love grass	*Eragrostis fosbergii*	Endangered
928	Parish's daisy	*Erigeron parishii*	Threatened
710	Cushenbury buckwheat	*Eriogonum ovalifolium var. vineum*	Endangered
936	Uvillo	*Eugenia haematocarpa*	Endangered
1169	No common name	*Eugenia woodburyana*	Endangered
1223	Akoko	*Euphorbia deppeana*	Endangered
1502	Akoko	*Euphorbia eleanoriae*	Endangered
664	Akoko	*Euphorbia halemanui*	Endangered
1094	Akoko	*Euphorbia kuwaleana*	Endangered
1607*	Akoko	*Euphorbia remyi var. remyi*	Endangered
713	Penland alpine fen mustard	*Eutrema penlandii*	Threatened
938	Heau	*Exocarpos luteolus*	Endangered
6782	Guadalupe fescue	*Festuca ligulata*	Endangered
715*	Hawaiian gardenia (=Na'u)	*Gardenia brighamii*	Endangered
1183	Nanu	*Gardenia mannii*	Endangered

Entity ID	Common name	Scientific name	Species or critical habitat (CH) status
5186	Nanu	*Gardenia remyi*	Endangered
3990	No common name	*Gonocalyx concolor*	Endangered
719	No common name	*Gouania hillebrandii*	Endangered
720	No common name	*Gouania meyenii*	Endangered
721	No common name	*Gouania vitifolia*	Endangered
941	Ash Meadows gumplant	*Grindelia fraxinipratensis*	Threatened
1220	Rock gnome lichen	*Gymnoderma lineare*	Endangered
722	Honohono	*Haplostachys haplostachya*	Endangered
871	Todsen's pennyroyal	*Hedeoma todsenii*	Endangered
943	Roan Mountain bluet	*Hedyotis purpurea var. montana*	Endangered
731	No common name	*Hesperomannia arborescens*	Endangered
732	No common name	*Hesperomannia arbuscula*	Endangered
735	Kauai hau kuahiwi	*Hibiscadelphus distans*	Endangered
947	Koki'o ke'oke'o	*Hibiscus arnottianus ssp. immaculatus*	Endangered
737	Clay's hibiscus	*Hibiscus clayi*	Endangered
738	Koki'o ke'oke'o	*Hibiscus waimeae ssp. hannerae*	Endangered
1058	Mountain golden heather	*Hudsonia montana*	Threatened
948	Cook's holly	*Ilex cookii*	Endangered
1120	Holy Ghost ipomopsis	*Ipomopsis sancti-spiritus*	Endangered
563	Aupaka	*Isodendrion laurifolium*	Endangered
564	Aupaka	*Isodendrion longifolium*	Threatened
741	Kula wahine noho	*Isodendrion pyrifolium*	Endangered
742	Small whorled pogonia	*Isotria medeoloides*	Threatened
743	Ash Meadows ivesia	*Ivesia kingii var. eremica*	Threatened
1121	West Indian walnut (=Nogal)	*Juglans jamaicensis*	Endangered
725	Kio'ele	*Kadua coriacea*	Endangered
727	Pilo	*Kadua laxiflora*	Endangered
728	No common name	*Kadua parvula*	Endangered
729	No common name	*Kadua st.-johnii*	Endangered
746	Koki'o	*Kokia drynarioides*	Endangered
747	Koki'o	*Kokia kauaiensis*	Endangered
954	Kamakahala	*Labordia cyrtandrae*	Endangered
2778	Kamakahala	*Labordia helleri*	Endangered
10599	No common name	*Labordia lorenciana*	Endangered
1178	Kamakahala	*Labordia tinifolia var. wahiawaensis*	Endangered

Entity ID	Common name	Scientific name	Species or critical habitat (CH) status
567	Anaunau	*Lepidium arbuscula*	Endangered
10593	No common name	*Lepidium orbiculare*	Endangered
958	San Bernardino Mountains bladderpod	*Lesquerella kingii ssp. bernardina*	Endangered
959	Heller's blazingstar	*Liatris helleri*	Threatened
755	Nehe	*Lipochaeta fauriei*	Endangered
962	Nehe	*Lipochaeta micrantha*	Endangered
964	Nehe	*Lipochaeta waimeaensis*	Endangered
965	No common name	*Lobelia monostachya*	Endangered
968	No common name	*Lysimachia filifolia*	Endangered
1170	Island malacothrix	*Malacothrix squalida*	Endangered
961	Nehe	*Melanthera kamolensis*	Endangered
963	Nehe	*Melanthera tenuifolia*	Endangered
8303	No common name	*Melicope (=Platydesma) cornuta var. cornuta*	Endangered
7046	No common name	*Melicope (=Platydesma) cornuta var. decurrens*	Endangered
1132	Alani	*Melicope adscendens*	Endangered
3472	Alani	*Melicope christophersenii*	Endangered
766	Alani	*Melicope haupuensis*	Endangered
4377	Alani	*Melicope hiiakae*	Endangered
767	Alani	*Melicope knudsenii*	Endangered
768	Alani	*Melicope lydgatei*	Endangered
769	Alani	*Melicope mucronulata*	Endangered
771	Alani	*Melicope ovalis*	Endangered
772	Alani	*Melicope pallida*	Endangered
575	Alani	*Melicope saint-johnii*	Endangered
775	Alani	*Melicope zahlbruckneri*	Endangered
776	Ash Meadows blazingstar	*Mentzelia leucophylla*	Threatened
518	Uhi uhi	*Mezoneuron kavaiense*	Endangered
10229	Sea bean	*Mucuna sloanei var. persericea*	Endangered
1033	No common name	*Myrcia paganii*	Endangered
5763	Kolea	*Myrsine fosbergii*	Endangered
1226	No common name	*Neraudia angulata*	Endangered
779	No common name	*Neraudia sericea*	Endangered
973	Amargosa niterwort	*Nitrophila mohavensis*	Endangered
780	Aiea	*Nothocestrum breviflorum*	Endangered
781	Aiea	*Nothocestrum peltatum*	Endangered

Appendix A – Methomyl "No Effect" Calls and Concurrence with "Not Likely to Adversely Affect" Calls

Entity ID	Common name	Scientific name	Species or critical habitat (CH) status
7067*	Holei	*Ochrosia haleakalae*	Endangered
1134	Cushenbury oxytheca	*Oxytheca parishii var. goodmaniana*	Endangered
788	Carter's panicgrass	*Panicum fauriei var. carteri*	Endangered
792	Knowlton's cactus	*Pediocactus knowltonii*	Endangered
4179	Fickeisen plains cactus	*Pediocactus peeblesianus fickeiseniae*	Endangered
2934	No common name	*Phyllostegia bracteata*	Endangered
799	No common name	*Phyllostegia glabra var. lanaiensis*	Endangered
589	No common name	*Phyllostegia hirsuta*	Endangered
981	No common name	*Phyllostegia mollis*	Endangered
591	No common name	*Phyllostegia parviflora*	Endangered
10231	No common name	*Phyllostegia pilosa*	Endangered
1136	Kiponapona	*Phyllostegia racemosa*	Endangered
7254	No common name	*Phyllostegia stachyoides*	Endangered
1137	No common name	*Phyllostegia velutina*	Endangered
1135	No common name	*Phyllostegia waimeae*	Endangered
1935	Whitebark pine	*Pinus albicaulis*	Threatened
800	Kuahiwi laukahi	*Plantago princeps*	Endangered
983	No common name	*Platanthera holochila*	Endangered
985	Chupacallos	*Pleodendron macranthum*	Endangered
3737	Hala pepe	*Pleomele forbesii*	Endangered
986	Mann's bluegrass	*Poa mannii*	Endangered
987	No common name	*Poa siphonoglossa*	Endangered
802	San Diego mesa-mint	*Pogogyne abramsii*	Endangered
7886	No common name	*Polyscias bisattenuata*	Endangered
851	Ohe'ohe	*Polyscias gymnocarpa*	Endangered
7367	No common name	*Polyscias lydgatei*	Endangered
778	No common name	*Polyscias racemosa*	Endangered
1062	Lo'ulu	*Pritchardia kaalae*	Endangered
1063	Lo'ulu	*Pritchardia schattaueri*	Endangered
3084	Kopiko	*Psychotria hexandra ssp. oahuensis*	Endangered
6536	Kopiko	*Psychotria hobdyi*	Endangered
10726	Aplokating-palaoan	*Psychotria malaspinae*	Endangered
810	Kaulu	*Pteralyxia kauaiensis*	Endangered
2265	Kaulu	*Pteralyxia macrocarpa*	Endangered
3292	Makou	*Ranunculus mauiensis*	Endangered

Entity ID	Common name	Scientific name	Species or critical habitat (CH) status
814	No common name	*Remya kauaiensis*	Endangered
601	No common name	*Sanicula purpurea*	Endangered
1093	Awiwi	*Schenkia (=Centaurium) sebaeoides*	Endangered
1065	Ma'oli'oli	*Schiedea apokremnos*	Endangered
10483	No common name	*Schiedea diffusa ssp. macraei*	Endangered
10591	No common name	*Schiedea diffusa subsp. diffusa*	Endangered
602	No common name	*Schiedea hookeri*	Endangered
822	No common name	*Schiedea kaalae*	Endangered
603	Ma'oli'oli	*Schiedea kealiae*	Endangered
10233	No common name	*Schiedea laui*	Endangered
604	No common name	*Schiedea membranacea*	Endangered
1148	No common name	*Schiedea nuttallii*	Endangered
2036	Ma'oli'oli	*Schiedea pubescens*	Endangered
4030	No common name	*Schiedea salicaria*	Endangered
1069	No common name	*Schiedea spergulina var. leiopoda*	Endangered
1070	No common name	*Schiedea spergulina var. spergulina*	Threatened
1071	Laulihilihi	*Schiedea stellarioides*	Endangered
606	No common name	*Schiedea verticillata*	Endangered
1075	No common name	*Schiedea viscosa*	Endangered
1072	No common name	*Schoepfia arenaria*	Threatened
1038	Hayun Iagu (=(Guam), Tronkon guafi (Rota))	*Serianthes nelsonii*	Endangered
609	Santa Cruz Island rockcress	*Sibara filifolia*	Endangered
1151	Anunu	*Sicyos albus*	Endangered
10585	No common name	*Sicyos lanceoloideus*	Endangered
1623	Anunu	*Sicyos macrophyllus*	Endangered
1000	Pedate checker-mallow	*Sidalcea pedata*	Endangered
1001	No common name	*Silene hawaiiensis*	Threatened
1152	No common name	*Silene perlmanii*	Endangered
4551	Marron bacora	*Solanum conocarpum*	Endangered
1002	Erubia	*Solanum drymophilum*	Endangered
10727	Berenghenas halomtano	*Solanum guamense*	Endangered
832	Popolo ku mai	*Solanum incompletum*	Endangered
833	Aiakeakua popolo	*Solanum sandwicense*	Endangered

Appendix A – Methomyl "No Effect" Calls and Concurrence with "Not Likely to Adversely Affect" Calls

Entity ID	Common name	Scientific name	Species or critical habitat (CH) status
1004	Blue Ridge goldenrod	*Solidago spithamaea*	Threatened
1005	Cobana negra	*Stahlia monosperma*	Threatened
10234	No common name	*Stenogyne kauaulaensis*	Endangered
1040	Palo de jazmin	*Styrax portoricensis*	Endangered
843	Texas snowbells	*Styrax texanus*	Endangered
1164	California seablite	*Suaeda californica*	Endangered
844	Eureka dune grass	*Swallenia alexandrae*	Endangered
614	California taraxacum	*Taraxacum californicum*	Endangered
1006	Palo colorado	*Ternstroemia luquillensis*	Endangered
1007	No common name	*Ternstroemia subsessilis*	Endangered
846	Pamakani	*Tetramolopium capillare*	Endangered
848	No common name	*Tetramolopium lepidotum ssp. lepidotum*	Endangered
849*	No common name	*Tetramolopium remyi*	Endangered
1009	Slender-petaled mustard	*Thelypodium stenopetalum*	Endangered
11340	No common name	*Tinospora homosepala*	Endangered
860	Opuhe	*Urera kaalae*	Endangered
3267	No common name	*Varronia rupicola*	Threatened
1173	Big-leaved crownbeard	*Verbesina dissita*	Threatened
1158	No common name	*Vernonia proctorii*	Endangered
868	Dwarf iliau	*Wilkesia hobdyi*	Endangered
1018	St. Thomas prickly-ash	*Zanthoxylum thomasianum*	Endangered
618	No common name	*Abutilon sandwicense*	Final CH
496	San Diego thornmint	*Acanthomintha ilicifolia*	Final CH
874	Round-leaved chaff-flower	*Achyranthes splendens var. rotundata*	Final CH
499	No common name	*Amaranthus brownii*	Final CH
500	San Diego ambrosia	*Ambrosia pumila*	Final CH
2823	Franciscan manzanita	*Arctostaphylos franciscana*	Final CH
506	Bear Valley sandwort	*Arenaria ursina*	Final CH
507	Braunton's milk-vetch	*Astragalus brauntonii*	Final CH
1020*	Holmgren milk-vetch	*Astragalus holmgreniorum*	Final CH
1021	Peirson's milk-vetch	*Astragalus magdalenae var. peirsonii*	Final CH
641	Ash meadows milk-vetch	*Astragalus phoenix*	Final CH
511*	Ventura marsh milk-vetch	*Astragalus pycnostachyus var. lanosissimus*	Final CH
2278	Ko'oko'olau	*Bidens amplectens*	Final CH

Appendix A – Methomyl "No Effect" Calls and Concurrence with "Not Likely to Adversely Affect" Calls

Entity ID	Common name	Scientific name	Species or critical habitat (CH) status
7617	Ko'oko'olau	*Bidens campylotheca ssp. pentamera*	Final CH
8277	Ko'oko'olau	*Bidens campylotheca ssp. waihoiensis*	Final CH
10479	No common name	*Bidens hillebrandiana spp. hillebrandiana*	Final CH
649	Olulu	*Brighamia insignis*	Final CH
650	Pua 'ala	*Brighamia rockii*	Final CH
523	Ash-grey paintbrush	*Castilleja cinerea*	Final CH
659	Kamanomano	*Cenchrus agrimonioides*	Final CH
660	Spring-loving centaury	*Centaurium namophilum*	Final CH
1093	Awiwi	*Centaurium sebaeoides*	Final CH
3388	Papala	*Charpentiera densiflora*	Final CH
1378*	Scotts Valley spineflower	*Chorizanthe robusta var. hartwegii*	Final CH
1098	Oha wai	*Clermontia oblongifolia ssp. mauiensis*	Final CH
1188	Oha wai	*Clermontia samuelii*	Final CH
1525	Florida semaphore cactus	*Consolea corallicola*	Final CH
1175	Haha	*Cyanea acuminata*	Final CH
3540	Haha	*Cyanea calycina*	Final CH
1185	Haha	*Cyanea copelandii ssp. haleakalaensis*	Final CH
1224	haha	*Cyanea crispa*	Final CH
10222	haha	*Cyanea duvalliorum*	Final CH
1278	Haha	*Cyanea eleeleensis*	Final CH
1102	Haha	*Cyanea glabra*	Final CH
1049	Haha	*Cyanea grimesiana ssp. obatae*	Final CH
1186	Haha	*Cyanea hamatiflora ssp. hamatiflora*	Final CH
10223	Haha nui	*Cyanea horrida*	Final CH
535	Haha	*Cyanea humboldtiana*	Final CH
9952	Haha	*Cyanea kolekoleensis*	Final CH
1181	Haha	*Cyanea koolauensis*	Final CH
4961	Haha	*Cyanea kuhihewa*	Final CH
1968	Haha	*Cyanea kunthiana*	Final CH
6019	Haha	*Cyanea lanceolata*	Final CH
1182	Haha	*Cyanea longiflora*	Final CH
10225	Haha	*Cyanea maritae*	Final CH
685	Haha	*Cyanea mceldowneyi*	Final CH

Entity ID	Common name	Scientific name	Species or critical habitat (CH) status
2860	Haha	*Cyanea obtusa*	Final CH
915	Haha	*Cyanea pinnatifida*	Final CH
1636	No common name	*Cyanea purpurellifolia*	Final CH
1176	Haha	*Cyanea remyi*	Final CH
537	Haha	*Cyanea rivularis*	Final CH
687	Haha	*Cyanea st.-johnii*	Final CH
688	Haha	*Cyanea superba*	Final CH
1106	Haha	*Cyanea truncata*	Final CH
536	Ha'iwale	*Cyrtandra dentata*	Final CH
10228	Ha'iwale	*Cyrtandra ferripilosa*	Final CH
919	Ha'iwale	*Cyrtandra giffardii*	Final CH
8347	Haiwale	*Cyrtandra gracilis*	Final CH
4201	Ha'iwale	*Cyrtandra kaulantha*	Final CH
1110	Ha'iwale	*Cyrtandra limahuliensis*	Final CH
690	Ha'iwale	*Cyrtandra polyantha*	Final CH
2273	Ha'iwale	*Cyrtandra sessilis*	Final CH
691	Ha'iwale	*Cyrtandra subumbellata*	Final CH
1112	Ha'iwale	*Cyrtandra viridiflora*	Final CH
5991	Ha'iwale	*Cyrtandra waiolani*	Final CH
559*	Otay tarplant	*Deinandra (=Hemizonia) conjugens*	Final CH
693	Oha	*Delissea subcordata*	Final CH
539	Baker's larkspur	*Delphinium bakeri*	Final CH
540	Yellow larkspur	*Delphinium luteum*	Final CH
1054	Na'ena'e	*Dubautia herbstobatae*	Final CH
4858	Na'ena'e	*Dubautia imbricata ssp. imbricata*	Final CH
926	Ash Meadows sunray	*Enceliopsis nudicaulis var. corrugata*	Final CH
545	Fosberg's love grass	*Eragrostis fosbergii*	Final CH
6490	Umtanum desert buckwheat	*Eriogonum codium*	Final CH
709	Gypsum wild-buckwheat	*Eriogonum gypsophilum*	Final CH
548	Southern mountain wild-buckwheat	*Eriogonum kennedyi var. austromontanum*	Final CH
662	Akoko	*Euphorbia celastroides var. kaenana*	Final CH
1223	Akoko	*Euphorbia deppeana*	Final CH
549	Akoko	*Euphorbia haeleeleana*	Final CH
664	'Akoko	*Euphorbia halemanui*	Final CH

Appendix A – Methomyl "No Effect" Calls and Concurrence with "Not Likely to Adversely Affect" Calls

Entity ID	Common name	Scientific name	Species or critical habitat (CH) status
1179	Akoko	*Euphorbia herbstii*	Final CH
1094	Akoko	*Euphorbia kuwaleana*	Final CH
3871	Akoko	*Euphorbia remyi var. kauaiensis*	Final CH
1607	Akoko	*Euphorbia remyi var. remyi*	Final CH
1180	Akoko	*Euphorbia rockii*	Final CH
665	Ewa Plains ʻakoko	*Euphorbia skottsbergii var. skottsbergii*	Final CH
1183	Nanu	*Gardenia mannii*	Final CH
2758	Nohoanu	*Geranium hanaense*	Final CH
939	Nohoanu	*Geranium multiflorum*	Final CH
719	No common name	*Gouania hillebrandii*	Final CH
720	No common name	*Gouania meyenii*	Final CH
941	Ash Meadows gumplant	*Grindelia fraxinipratensis*	Final CH
732	No common name	*Hesperomannia arbuscula*	Final CH
560	Hau kuahiwi	*Hibiscadelphus giffardianus*	Final CH
736	(=Native yellow hibiscus) ma'o hau hele	*Hibiscus brackenridgei*	Final CH
737	Clay's hibiscus	*Hibiscus clayi*	Final CH
6617	Neches River rose-mallow	*Hibiscus dasycalyx*	Final CH
738	Koki'o ke'oke'o	*Hibiscus waimeae ssp. hannerae*	Final CH
1058	Mountain golden heather	*Hudsonia montana*	Final CH
563	Aupaka	*Isodendrion laurifolium*	Final CH
564	Aupaka	*Isodendrion longifolium*	Final CH
743	Ash Meadows ivesia	*Ivesia kingii var. eremica*	Final CH
2458	Webber's ivesia	*Ivesia webberi*	Final CH
724	ʻAwiwi	*Kadua cookiana*	Final CH
725	Kio'ele	*Kadua coriacea*	Final CH
726	No common name	*Kadua degeneri*	Final CH
728	No common name	*Kadua parvula*	Final CH
729	No common name	*Kadua st.-johnii*	Final CH
746	Koki'o	*Kokia drynarioides*	Final CH
954	Kamakahala	*Labordia cyrtandrae*	Final CH
2778	Kamakahala	*Labordia helleri*	Final CH
1400	Texas golden gladecress	*Leavenworthia texana*	Final CH
964	Nehe	*Lipochaeta waimeaensis*	Final CH
572	No common name	*Lobelia koolauensis*	Final CH
965	No common name	*Lobelia monostachya*	Final CH
758	No common name	*Lobelia niihauensis*	Final CH
759	No common name	*Lobelia oahuensis*	Final CH

Entity ID	Common name	Scientific name	Species or critical habitat (CH) status
968	No common name	*Lysimachia filifolia*	Final CH
1128	No common name	*Lysimachia lydgatei*	Final CH
963	Nehe	*Melanthera tenuifolia*	Final CH
765	Alani	*Melicope balloui*	Final CH
3472	Alani	*Melicope christophersenii*	Final CH
4377	Alani	*Melicope hiiakae*	Final CH
768	Alani	*Melicope lydgatei*	Final CH
3728	Alani	*Melicope makahae*	Final CH
771	Alani	*Melicope ovalis*	Final CH
772	Alani	*Melicope pallida*	Final CH
8357	Alani	*Melicope paniculata*	Final CH
3753	Alani	*Melicope puberula*	Final CH
575	Alani	*Melicope saint-johnii*	Final CH
775	Alani	*Melicope zahlbruckneri*	Final CH
776	Ash Meadows blazingstar	*Mentzelia leucophylla*	Final CH
518	Uhi uhi	*Mezoneuron kavaiense*	Final CH
1133	Kolea	*Myrsine juddii*	Final CH
1226	No common name	*Neraudia angulata*	Final CH
581	No common name	*Neraudia ovata*	Final CH
779	No common name	*Neraudia sericea*	Final CH
781	Aiea	*Nothocestrum peltatum*	Final CH
1134	Cushenbury oxytheca	*Oxytheca parishii var. goodmaniana*	Final CH
827	San Francisco Peaks ragwort	*Packera franciscana*	Final CH
586	Lyon’s pentachaeta	*Pentachaeta lyonii*	Final CH
2683	Ala ‘ala wai nui	*Peperomia subpetiolata*	Final CH
2934	No common name	*Phyllostegia bracteata*	Final CH
10230	No common name	*Phyllostegia haliakalae*	Final CH
589	No common name	*Phyllostegia hirsuta*	Final CH
1184	No common name	*Phyllostegia kaalaensis*	Final CH
1163	No common name	*Phyllostegia mannii*	Final CH
981	No common name	*Phyllostegia mollis*	Final CH
591	No common name	*Phyllostegia parviflora*	Final CH
10231	No common name	*Phyllostegia pilosa*	Final CH
9960	No common name	*Phyllostegia renovans*	Final CH
1137	No common name	*Phyllostegia velutina*	Final CH
983	No common name	*Platanthera holochila*	Final CH
8303	No common name	*Platydesma cornuta var. cornuta*	Final CH
7046	No common name	*Platydesma cornuta var. decurrens*	Final CH

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Entity ID	Common name	Scientific name	Species or critical habitat (CH) status
3387	Pilo kea lau li'i	*Platydesma rostrata*	Final CH
3737	Hala pepe	*Pleomele forbesii*	Final CH
1141	Hala pepe	*Pleomele hawaiiensis*	Final CH
594	San Bernardino bluegrass	*Poa atropurpurea*	Final CH
1267*	Scotts Valley polygonum	*Polygonum hickmanii*	Final CH
7886	No common name	*Polyscias bisattenuata*	Final CH
9961	No common name	*Polyscias flynnii*	Final CH
851	Ohe'ohe	*Polyscias gymnocarpa*	Final CH
7367	No common name	*Polyscias lydgatei*	Final CH
778	No common name	*Polyscias racemosa*	Final CH
598	Lo'ulu	*Pritchardia remota*	Final CH
3084	Kopiko	*Psychotria hexandra ssp. oahuensis*	Final CH
2265	Kaulu	*Pteralyxia macrocarpa*	Final CH
814	No common name	*Remya kauaiensis*	Final CH
815	Maui remya	*Remya mauiensis*	Final CH
1146	No common name	*Sanicula mariversa*	Final CH
993	Lanai sandalwood (='iliahi)	*Santalum haleakalae var. lanaiense*	Final CH
602	No common name	*Schiedea hookeri*	Final CH
10232	No common name	*Schiedea jacobii*	Final CH
822	No common name	*Schiedea kaalae*	Final CH
603	Ma'oli'oli	*Schiedea kealiae*	Final CH
1084	Kuawawaenohu	*Schiedea lychnoides*	Final CH
1148	No common name	*Schiedea nuttallii*	Final CH
622	No common name	*Schiedea obovata*	Final CH
4030	No common name	*Schiedea salicaria*	Final CH
1069	No common name	*Schiedea spergulina var. leiopoda*	Final CH
1070	No common name	*Schiedea spergulina var. spergulina*	Final CH
623	No common name	*Schiedea trinervis*	Final CH
606	No common name	*Schiedea verticillata*	Final CH
1075	No common name	*Schiedea viscosa*	Final CH
999	Ohai	*Sesbania tomentosa*	Final CH
1151	Anunu	*Sicyos albus*	Final CH
611	Wenatchee Mountains checkermallow	*Sidalcea oregana var. calva*	Final CH
1152	No common name	*Silene perlmanii*	Final CH
833	Aiakeakua popolo	*Solanum sandwicense*	Final CH
1154	No common name	*Spermolepis hawaiiensis*	Final CH

Appendix A – Methomyl "No Effect" Calls and Concurrence with "Not Likely to Adversely Affect" Calls

Entity ID	Common name	Scientific name	Species or critical habitat (CH) status
839	No common name	*Stenogyne kanehoana*	Final CH
2517	No common name	*Stenogyne kealiae*	Final CH
840	Malheur wire-lettuce	*Stephanomeria malheurensis*	Final CH
846	Pamakani	*Tetramolopium capillare*	Final CH
848	No common name	*Tetramolopium lepidotum ssp. lepidotum*	Final CH
849	No common name	*Tetramolopium remyi*	Final CH
1157	No common name	*Trematolobelia singularis*	Final CH
860	Opuhe	*Urera kaalae*	Final CH
3267	No common name	*Varronia rupicola*	Final CH
863	Pamakani	*Viola chamissoniana ssp. chamissoniana*	Final CH
867	No common name	*Viola oahuensis*	Final CH
4238	No common name	*Wikstroemia villosa*	Final CH
1016	No common name	*Xylosma crenatum*	Final CH
7979	A'e	*Zanthoxylum oahuense*	Final CH

We do not expect plants will experience any direct adverse effects from exposure to methomyl (as detailed in the *General Effects to Plants* section in the main Opinion). Adverse effects to listed plant species will only occur through indirect toxic effects to pollinators and seed dispersers. Two plant entities, *Cladonia perforata* and *Gymnoderma lineara*, are lichens and do not rely on pollinators. Similarly, the following plant species do not rely on pollinators: *Cenchrus agrimonioides*, *Cyperus pennatiformis*, *Cyrtandra waiolani*, *Eragrostis fosbergii*, *Neraudia sericea*, *Panicum fauriei* var. *carteri*, *Pinus albicaulis*, *Poa mannii*, *Poa siphonoglossa*, and *Schiedea laui*. Therefore, we expect any exposure to methomyl will result in insignificant effects and concur with "not likely to adversely affect" determinations for these 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., *Amaranthus brownii*), mountain summits (e.g., *Hudsonia montana*, *Ilex cookii*, *Liatris helleri*), or forests (e.g., *Gonocalyx concolor*, *Myrcia paganii*, *Styrax portoricensis*) where we do not expect agriculture to occur. Thus, we anticipate that the likelihood of exposure is so remote as to be discountable.

For *Arctostaphylos glandulosa* ssp. *crassifolia*, *Euphorbia remyi* var. *remyi*, *Gardenia brighamii*, *Ochrosia haleakalae*, and *Tetramolopium remyi*, we expect exposure and consequences related to toxic effects to water quality are great enough for these species to warrant "likely to adversely affect" determinations and do not concur with EPA's "not likely to adversely affect" determinations. We analyzed effects to these species further in our Opinion.

For critical habitats, we do not anticipate methomyl use in agricultural areas will result in measurable reductions in the quality of the relevant PBFs. For *Eriogonum gypsophilum*, *Hudsonia montana*, and *Stephanomeria malheurensis*, specific PBFs are not mentioned in the species' critical habitat rules nor are any environmental characteristics to define the critical habitat. *Eriogonum gypsophilum* and *Stephanomeria malheurensis* critical habitats are managed by the Bureau of Land Management. The *Hudsonia montana* critical habitat is entirely within the boundaries of the Linville Gorge Wilderness Area managed by the U.S. Forest Service. We expect minimal, if any, agriculture or methomyl use to occur on federal lands and therefore, insignificant effects to PBFs. The critical habitat rules for *Consolea corallicola, Delphinium bakeri*, *Delphinium luteum, Eriogonum codium*, and *Ivesia webberi* list pollinators as a PBF, but the critical habitats are in areas where agriculture does not occur (*C. corallicola* = along the Florida Keys; *Delphinium bakeri* and *Delphinium luteum* = mountain slopes on shale soils; *Eriogonum codium* = basalt cliffs on a mountain). We do not expect methomyl use to occur in these locations and as such we expect any exposure to the critical habitats for *Eriogonum gypsophilum*, *Hudsonia montana*, *Stephanomeria malheurensis, Consolea corallicola, Delphinium bakeri, Delphinium luteum, Eriogonum codium*, and *Ivesia webberi* will be discountable.

For Astragalus holmgreniorum, Astragalus pycnostachyus var. lanosissimus, Chorizanthe robusta var. hartwegii, Deinandra (=Hemizonia) conjugens, and Polygonum hickmanii, the critical habitat rules list pollinators as a PBF essential to the conservation of the species. All these critical habitats are under mixed ownership (i.e., private, state, federal) and agriculture is listed as a concern for at least one critical habitat unit. We expect exposure and consequences related to indirect toxic effects to pollinators are great enough for these critical habitats to warrant "likely to adversely affect" determinations and do not concur with EPA's "not likely to adversely affect" determinations. We analyzed effects to these critical habitats further in our Opinion.

The remaining plant critical habitat rules define PBFs, but none are relevant to the types of PBFs that we anticipate will be affected by pesticides (i.e., arthropod prey, non-arthropod prey, water quality, pollinators, host fish, habitat function). Therefore, we expect any effects to these critical habitats will be insignificant.

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