

EXECUTIVE SUMMARY

This draft Biological Opinion (Opinion) evaluates the effects of the Environmental Protection Agency's (EPA's) proposed national registration review of methomyl and its effects on endangered and threatened species and designated critical habitat under U.S. Fish and Wildlife Service (Service) jurisdiction, in accordance with section 7 of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 et seq.). This Opinion also serves as a conference report for proposed species and proposed critical habitats.

Current product labels authorize methomyl for use on a wide variety of terrestrial food and feed crops, terrestrial non-food crops, greenhouse food/non-food, and non-agricultural indoor and outdoor sites. There are currently three active registrants of methomyl, the primary of which is Tessengerlo Kerley Inc. (TKI), with 34 active product labels (16 under Section 3s, 18 under Special Local Needs), which include formulated products and technical grade methomyl. All the formulated methomyl products, with the exception of fly bait products, are Restricted Use Pesticides (RUPs) – meaning they can only be applied by, or under the supervision of, a certified applicator. Methomyl can be applied in a liquid, granular (corn only), scatter bait, bait station, or as a brush-on paste and generally from emergence to harvest for most crops. Aerial and ground application methods (including broadcast, soil incorporation, orchard airblast, and chemigation) are allowed. Registered labels require applications to use a buffer of 25 feet for ground and 100 feet for aerial applications around natural and artificial bodies of water. Additionally, granular products require a 25-foot (ground) buffer zone adjacent to waterbodies. Additional label restrictions for individual crops include restrictions on minimum temperature and plant height at application, in addition to preharvest interval, retreatment interval, number of applications, and maximum application volume.

Key Findings

Our analysis of the effects of the action considered the information on the methomyl label and supplemental information that we received from EPA and TKI. In this Biological and Conference Opinion, we addressed 1,020 species and 271 critical habitats. EPA also requested concurrence with their determinations that the proposed action may affect, but is not likely to adversely affect, 434 listed and proposed species and 260 designated and proposed critical habitats. EPA determined there would be no effect from the proposed action to 235 listed and proposed species and 253 designated and proposed critical habitats. In an associated Concurrence Appendix, we described our concurrence and agreement with EPA's not likely to adversely affect and no effect determinations. We also explained our reasonings behind including 18 species and 16 critical habitats in our Biological Opinion instead of the concurrence appendix (i.e., disagreeing with EPA's "no effect" or "not likely to adversely affect" determinations).

Analysis and Methods

We followed an ecological risk assessment framework to determine effects to species and their critical habitats. We used information presented in EPA's BE (i.e., pesticide exposure estimates and toxicological response data), supplemental information provided by EPA since the transmission of the BE (i.e., changes to species or chemical information and usage data from the California Department of Pesticide Regulation) and from the registrant TKI, when applicable, to

predict the resulting effects to species and critical habitats. We assessed anticipated toxicological effects related to the proposed action, including anticipated general pathways of exposure to listed species taxa groups and their designated critical habitats (i.e., physical and biological features, or PBFs). We then describe specific aspects of methomyl (e.g., chemical properties, applications rates, routes of exposure, etc.), its use on the landscape (i.e., different types of usage data), and how it will impact species and critical habitats based on these properties. We describe factors that influence exposure and effects and how we incorporated them into our analysis. Within the Integration and Synthesis section of the Opinion, we describe our approach to the analysis for each of the taxa groups which includes incorporating all aspects of the potential exposure to methomyl for the different taxonomic groups within the context of the status of the species and critical habitat, environmental baseline, and cumulative effects.

For species that EPA determined were “likely to be adversely affected” by the proposed action or that the EPA determined were “not likely to be adversely affected” and we did not concur, we assessed the species’ overall vulnerability and conducted a risk analysis. The risk analysis included metrics of exposure and expected magnitude of adverse effects. We used the percent overlap between the species’ ranges and the action area (i.e., methomyl use sites and areas of off-site transport through spray drift or runoff). When available, we used metrics for past methomyl and insecticide usage (i.e., EPA’s National and State Summary Use and Usage Matrix, U.S. Department of Agriculture’s Census of Agriculture; and California’s Department of Pesticide Registration’s California Pesticide Use Report) to assess potential future exposure to methomyl. Finally, we compared estimated environmental concentrations that EPA generated to reference toxicity thresholds to determine the expected magnitude of adverse effects to individuals and necessary ecological resources, including critical habitat PBFs when applicable. Depending on the species, toxicological effects included mortality, growth inhibition, reproduction loss, reduction in habitat, or prey loss. We used these pieces of information to generate the anticipated risk of adverse effects for each species considered in this Opinion.

Our Opinion includes analyses and conclusions for the species for which EPA provided determinations in the final BE and subsequent correspondence. Some additional species have been listed and critical habitats have been designated for which we do not have EPA’s determinations or the other information needed for our analyses. We intend to work with EPA to address these species and designated critical habitat in our final Opinion.

Results

Animals

In total, we considered 537 listed animals and 214 designated animal critical habitats in our Opinion that either EPA determined were likely to be adversely affected by the proposed action or that the EPA determined were “not likely to be adversely affected” and we did not concur. We expect direct adverse effects to animals if they occur on methomyl use sites or consume contaminated food items. Overall, we expect these effects to be greater when exposed to concentrations of methomyl on treated fields rather than from spray drift or runoff. We expect relatively high levels of mortality for aquatic and terrestrial invertebrates where exposure occurs. For other taxa groups, we expect variable levels of mortality, sublethal, and indirect effects based on their life history, food base, and other considerations. After considering the extent of

exposure, magnitude of expected impacts to individuals and their resources, vulnerability analysis, environmental baseline, and cumulative effects, we concluded that the proposed action poses a high risk of adverse effects and is likely to jeopardize 53 listed animal species. After assessing the extent of exposure and magnitude of effects to PBFs, we found that the proposed action poses a high risk of adverse effects and is likely to destroy or adversely modify 28 designated critical habitats for animal species.

Plants

In total, we considered 483 listed plants and 57 designated plant critical habitats in our Opinion that either EPA determined were likely to be adversely affected by the proposed action or that the EPA determined were "not likely to be adversely affected" and we did not concur. We expect effects to plants will occur for those that rely on pollinators or dispersers, primarily invertebrates. We do not expect direct effects to plants from exposure to methomyl, and we do not anticipate any appreciable reductions in the availability of mammalian or avian pollinators or seed dispersers. After considering the extent of exposure, magnitude of expected impacts to individuals and their resources, vulnerability analysis, environmental baseline, and cumulative effects, we concluded that the proposed action poses a high risk of adverse effects and is likely to jeopardize 29 listed plant species. After assessing the extent of exposure and magnitude of effects to PBFs, we found that the proposed action poses a high risk of adverse effects and is likely to destroy or adversely modify six designated critical habitats for plant species.

Conclusions and Next Steps

Based on our analysis of listed species and designated critical habitats considered in this Opinion, which combines a vulnerability and risk analysis with the species' environmental baseline and cumulative effects, we conclude that the proposed action is likely to jeopardize 82 listed species and destroy or adversely modify 34 designated critical habitats. For other listed species and designated critical habitats, we expect exposure to methomyl and adverse effects to occur at low magnitudes. We do not expect significant population-level effects are likely for these species. We will work with EPA and TKI prior to issuing a final biological opinion to develop technologically and economically feasible Reasonable and Prudent Measures tailored to the needs of the species and critical habitats where applicable.