**Why is the research needed?**

Invertebrates are likely to be amongst the species most affected by the 2019–20 wildfires. This is because of the large number of invertebrate species, many which have very small ranges (such that fires may have affected entire populations), and with ecological and life history traits that render them especially susceptible to fire. However, there are major knowledge gaps that render assessment of such impacts particularly challenging.

The project aims to use a collaborative approach, extending on the initial priority listing of fire-affected invertebrates first developed for the Wildlife and Threatened Species Bushfire Recovery Expert Panel, and will build upon and consolidate the extensive collaboration with experts and state agencies developed during that project.

**How will the research help?**

The project will, to the extent possible, interrogate all accessible and useful distributional information for all invertebrates in the bioregions affected by these wildfires, (where possible) modelling these distributions, and calculating overlap with fires of varying severity classes. Given constraints in the distributional information, it will complement this approach with expert opinion, and work with experts to detail information on ecological and life history traits that relate to species’ susceptibility to fires, their post-fire threats and their remedial management requirements.
The project aims to help align recovery actions (and survey and monitoring) to priority needs of the most fire-affected invertebrate species. It will do so by extending and refining the species’ prioritisation currently used to help direct funding support by the Australian government to wildlife and threatened species bushfire recovery.

The project is working with the Australian and state/territory agencies to collaboratively develop and justify prioritisations for fire-affected invertebrate species and provide relevant information on those management actions most likely to aid their recovery. This will build from and add much detail to the priority listing developed for/ by The Wildlife and Threatened Species Bushfire Recovery Expert Panel in March–April 2020.

What research activities are being undertaken?

The research will mine appropriate distributional databases (most notably ALA) to use all possible acceptable records for all native invertebrate species that are known to occur within fire-affected bioregions; develop distributional models (or analogous range estimators) for selected subsets of these; overlap these distributional layers with fire-mapping (with fire severity classes); work with experts and literature to develop databases of traits affecting fire-susceptibility, threats and management; and coordinate progress and procedures with comparable analyses undertaken by state/territory agencies.

Who is involved?

In this project, researchers from Charles Darwin University and The University of Melbourne are working with state and territory governments within the areas affected by the 2019–20 fires. We will seek collaboration with all willing invertebrate experts and federal and state/territory agencies.

Where is the research happening?

The project is essentially a desktop analysis. Depending upon travel constraints due to COVID-19, the project is also seeking to draw experts and state agency representatives to at least one workshop. The research will pertain to all fire-affected regions of southern and eastern Australia.

When is the research happening?

The project will run over eight months from July 2020.