Predicting high pathogenicity avian influenza H5N1 susceptibility in wild birds, with special reference to Australia

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The authors declare no conflicts of interest.

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Author's contribution

Study conceptualisation and design: SR, TR, MK; data collation: SR, TR, MK; data analysis: SR with input from TR and MK; writing: SR with input from TR and MK

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Abstract

High pathogenicity avian influenza (HPAI) has caused widespread sickness and mortality in poultry and wildlife, especially since the emergence of a novel H5 virus belonging to clade 2.3.4.4b in 2021. The ongoing panzootic caused by this lineage has infected an unprecedented diversity of species across the globe. Here, we analyse outbreak notifications of HPAI in wild birds to understand the impacts of species' ecologies and phylogeny on HPAI notifications and predict host susceptibility to HPAI H5N1 for Australia, as the only continent thus far unaffected by this virus. We found a significant family-level phylogenetic signal in HPAI notifications in wild birds. Furthermore, we found that adding ecological traits to this phylogenetic information does not improve explanatory power of HPAI notifications. Using the family-level phylogenies to predict HPAI H5N1 susceptibility in Australian birds, we predict that families of Australian seabirds, shorebirds, and waterbirds will be most susceptible to HPAI H5N1 once it arrives on the continent. Our results provide an empirical indication of species susceptible to HPAI H5N1, with special reference to Australia, which can be used in conjunction with conservation status and other species-specific information to inform preparedness activities, monitoring, and response upon incursion.

Keywords

Avian influenza; HPAI H5N1; host susceptibility

Introduction

High pathogenicity avian influenza (HPAI) has wreaked havoc on poultry and wildlife for decades, causing tremendous financial and conservation harm. Low pathogenicity avian influenza (LPAI) viruses are often associated with wild waterfowl, and particularly ducks, and have occasionally evolved into HPAI viruses following spill over events into poultry [1]. HPAI has particularly surged into focus since 2021 due to the emergence of a H5N1 virus belonging to clade 2.3.4.4b that is referred to as HPAI H5N1 [2, 3]. The current panzootic caused by this HPAI H5N1 virus is unprecedented in scale, having spread to every region except Oceania (including Australia and New Zealand) and causing large scale mortalities in poultry and wild birds, increasingly also spilling over into mammalian wildlife and livestock [3-5]. HPAI H5N1 has led to mass mortality events in wildlife and cause for conservation concern in some impacted species. For example, HPAI H5N1 is associated with 60% reductions in both northern gannets in the UK [6] and Dalmatian pelicans in Greece [7], and a 91% mortality rate of Caspian terns in Kazakhstan [8]. At the same time, the spread of the virus is also increasingly facilitated by some of these wild bird species. The HPAI H5N1 panzootic is set apart by increased host promiscuity, no longer being highly adapted specifically to poultry (e.g. [9]) and spreading geographically via far-ranging waterfowl, seabirds, and potentially other wild bird species [10, 11]. As such, understanding the new disease landscape for this virus, and notably what species are vulnerable to infection and may play a role in the maintenance and dispersal of the virus is of paramount importance, both to understand why HPAI H5N1 has had such drastic impacts on diverse wildlife and to be able to sketch this panzootic's future trajectory.

HPAI H5N1 has now been detected in over 400 different avian species during the current panzootic [5, 12]. Presence of LPAI, from which HPAI evolves, has a strong phylogenetic signal in wild birds [13], meaning avian influenza is more prevalent in certain closely-related clusters of species. Notably, there is phylogenetic signal of LPAI across different orders (with major reservoirs in waterfowl [Anseriformes], followed by shorebirds [Charadriiformes]), but with distinct variation remaining across families and species within orders [13]. However, how well that phylogenetic signal is preserved in the current panzootic is not well understood, and is potentially very different given the

diversity of birds currently impacted. The apparent expansion of hosts from LPAI to the current HPAI H5N1 impacts the predictability of its epidemiology, and notably our understanding of which species may be severely impacted by HPAI H5N1 as it spreads across the world.

Transmission of HPAI H5N1 within and between species might also depend on an individual's interaction with the transmission pathway. Avian influenza transmission occurs through faecal-oral pathways, which can take place directly through interaction with faecal matter or indirectly through interaction with contaminated water, where the virus can persist for a long time [14, 15]. Colony breeding, and specific colony traits such as distance between nests, have also been implicated in HPAI H5N1 spread [14, 16]. Based on infection patterns in predatory birds and mammals, HPAI H5N1 is also capable of spreading via consumption of infected birds [1, 17] and potentially via kleptoparasitism [18]. These distinct transmission pathways present particularly "risky ecologies" for birds to have, in terms of likelihood of encountering the virus: association with water, likely contact with faecal matter, dense flocking behaviour, and scavenging or predation are all likely to increase the probability of a species encountering HPAI H5N1. However, empirical testing of these potentially "risky ecologies" across known cases of H5N1 are lacking (but see [16]). Improved understanding of how ecological traits can increase disease exposure will furthermore improve our predictive power of which species are likely to be impacted once HPAI H5N1 reaches the last region it hasn't infected, Oceania (including Australia and New Zealand), and other more isolated parts of the world that have so far escaped exposure to the virus.

In this paper, we evaluate the influence of ecological traits and phylogenetic relationships on species' HPAI notifications and use this to predict susceptibility to HPAI of naïve, Australian species. We analysed notifications of HPAI in wild birds reported to the World Organisation of Animal Health (WOAH) across the world since the start of the panzootic. Using phylogenetic generalised linear mixed models, we modelled notifications of HPAI H5N1 in wild birds against multiple predictors: a family-level phylogeny and ecological traits that might influence disease exposure (habitat, diet, and congregation behaviour). Following model selection, we predict HPAI H5N1

susceptibility in Australian birds, as the last remaining continent not yet affected by the current panzootic. Here, our measure of "susceptibility" is the predicted number of HPAI notifications, which is modelled based on HPAI notifications to WOAH.

Methods

To model factors predicting HPAI H5N1 notifications in wild birds, we used the WOAH World Animal Health Information System (WAHIS) database of HPAI notifications. An HPAI notification in the WAHIS database can represent a) a notification of an HPAI detection in an environmental sample from the recorded wild bird species, b) a notification of an HPAI detection in the species, but where the individual had no obvious or reported clinical signs of sickness/death, and c) a notification of HPAI in sick and dead wild birds of the reported species. While underreporting of outbreaks is likely an issue with this database [5], it still provides a minimum indication of HPAI notifications because each notification may represent a single bird or multiple birds from a single species. The database was accessed on 06/01/2025 and filtered to only include notifications of outbreaks reported in wild birds of known species since October 2021. In 99% of the cases, the serotype of the HPAI notification was evaluated and established to be HPAI H5. We therefore assume that the majority (if not all) notifications used in our study relate to HPAI H5N1. It should be noted that WOAH bears no responsibility for the integrity or accuracy of the data, including but not limited to any deletion, manipulation, or reformatting of data that may have occurred beyond its control.

Because of the links between disease transmission pathways and ecological traits like aquatic lifestyles, certain feeding ecologies, and tendency to congregate, we modelled how ecological traits might influence HPAI H5N1 notifications in wild birds. Initial ecological categorisations of habitat and trophic niche were obtained from Avonet [19]. In our analyses, we wanted to avoid categorisations that were too narrow (e.g. differentiating between frugivores and granivores) or perhaps arbitrarily differentiated between species with otherwise similar ecologies (e.g. denominating the Common Merganser as inhabiting "riverine" habitat, but other mergansers as "wetland"). Therefore, we modified some habitat and trophic niche categorisations based on

information in Birds of the World [20], and broadened the groupings. We thus had three categories for habitat: Terrestrial, Freshwater, and Coastal/Marine, and three categories for diet: Predators (including scavengers, vertebrate and invertebrate predators), Plant-based diets (including aquatic and terrestrial plant material), and Omnivores (including any species that were both predators and plant-based feeders). We used BirdLife's list of congregating birds as our initial starting points for whether species were known to congregate or not (Y/N), and supplemented this with information from Birds of the World [20]. For a full list of species and our ultimate ecological categorisation for these species, see Supporting Information Table S1.

To predict HPAI susceptibility in Australian birds in the event of HPAI H5N1 incursion into Australia, we used the BirdLife Working List of Australian Birds dataset (https://birdata.birdlife.org.au/whats-in-a-name) to generate a list of Australian bird species. The list was refined to exclude rare vagrants and uncommon non-native species. Similar to how we treated the WAHIS dataset, we used Avonet's and BirdLife's ecological data on habitat, diet, and congregation as starting points, with refinement and broadening of categories to generate matching ecological traits. The full list of Australian birds we used, their ecological categorisations, and their IUCN status can be found in Supporting Information Table S2.

Statistical analyses

All analyses were conducted in R version 4.4.0. [21].

To model HPAI H5N1notifications in birds, we used a phylogenetic generalised linear mixed model (GLMM) in the 'brms' package [22]. We used a Poisson distribution of the number of HPAI notifications, modelled against the phylogeny. For the phylogeny, we used the family-level phylogeny from [23]. We used family, rather than species-level phylogeny to avoid reporting biases for more common species, when species in the same family are likely to share similar ecological traits and immune system architecture. This was especially relevant for our next step, outlined below, wherein we used the model of HPAI notifications to predict HPAI H5N1 susceptibility in Australian species (we wanted to avoid drastically uneven outbreak notification estimates for

Australian species in the same family, but where some species were closely related to a species with high HPAI notifications). We built upon the phylogenetic GLMM to include the ecological traits of species: habitat (N = 3 categories), diet (N = 3 categories), and whether the species is known to congregate (Y/N). We fitted three models that had one single ecological predictor (habitat, diet, or congregation), and then an additional model that included all 3 ecological predictors. We evaluated model fit of these against the null, phylogeny-only model using leave-one-out (LOO) cross validation information criterion (IC), which is interpreted similarly to AIC where low values are associated with better models.

The next step in our analyses was to predict which Australian species may be susceptible to HPAI H5N1 once it arrives in Australia, based on patterns of HPAI H5N1 notifications elsewhere in the world. We used the HPAI notification data to predict numbers of HPAI H5N1 notifications in Australian birds, and use this as our metric of predicted susceptibility to HPAI H5N1. Most (~98%) of HPAI notifications in the WAHIS database since October 2021 report deaths for species that have outbreak notifications, which means that our predicted susceptibility to infection is also linked to a species' likelihood of experiencing sickness and death. To predict susceptibility to HPAI H5N1, we first added the Australian bird families to our above phylogeny [23], thus resulting in a phylogeny with the families in the WAHIS database and the Australian families. Using the 'castor' package [24], we predicted HPAI H5N1 notification likelihood onto the Australian species. This was done using hidden state prediction via phylogenetic independent contrasts, using the family-level phylogeny with both known and unknown HPAI notifications (wherein known HPAI notifications were expressed as an average per family). Through this, we retrieved predicted HPAI H5N1 notifications for Australian bird families, which we interpreted as their predicted susceptibility to HPAI H5N1.

Plots were made using 'ggtree' [25] and 'ggplot2' [26]. Lastly, we extracted IUCN Redlist status for Australian species using the 'rredlist' package [27], to ascertain the conservation status of any species predicted to be highly susceptible to HPAI H5N1 and

thus highlight species that may be at greater risk due to pre-existing vulnerabilities or due to other reasons than vulnerability to HPAI H5N1.

Results

When analysing notifications of HPAI H5N1 in wild birds since October 2021 using the phylogeny-only model, we found a statistically significant phylogenetic signal (Pagel's λ: 0.54, 95% CI: 0.04 – 0.84). There were predominantly high numbers of HPAI H5N1 notifications amongst Sulidae (gannets and boobies), Laridae (gulls, terns, and noddies), and Anatidae (ducks, geese, and swans). To a lesser extent, other seabirds (like Pelecanidae [pelicans] and Alcidae [auks]), crows and ravens (Corvidae), and birds of prey (like Falconidae and Accipitridae) also had higher numbers of HPAI H5N1 notifications (Figure 1).

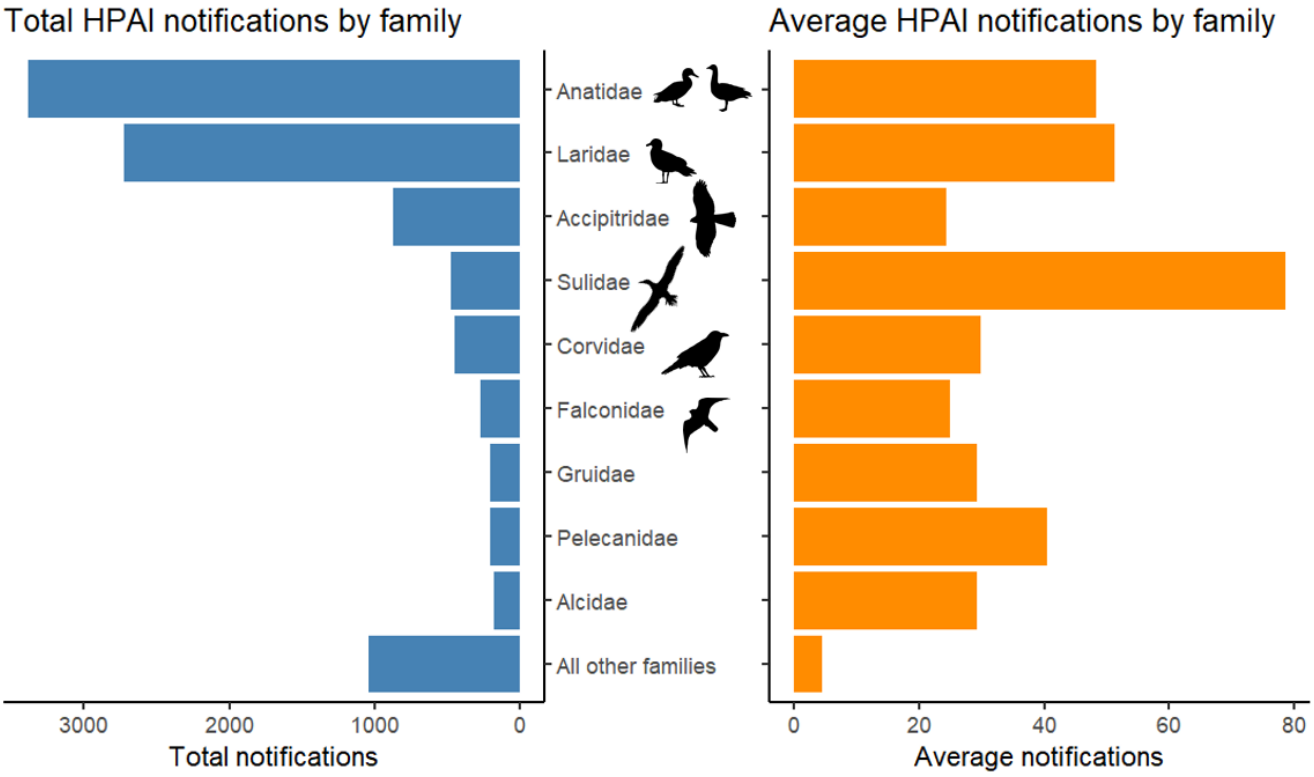

Figure 1. HPAI H5N1 notifications in wild birds 2021 – 2024. The left panel shows total HPAI H5N1 notifications made to WOAH WAHIS per family, while the right panel shows average HPAI H5N1 notifications per family. A few key families are highlighted by inclusion of bird icons from phylopic.org, going down from the top: Anatidae, Laridae, Accipitridae, Sulidae, Corvidae, and Falconidae.

Using leave-one-out (LOO) cross validation, we compared the fit of this null, phylogeny-only model and that of the ecological traits models. There were 4 models with ecological traits, where 3 models consisted of a single ecological trait (habitat, diet, or congregation) and a fourth model that included all three ecological traits. All four of these models included the phylogeny. There was substantial overlap in the standard errors of the LOO ICs computed for the models, which means that the additional variables in our ecological models did not significantly improve model fit over the null, phylogeny-only model (Figure S1; [28]). Therefore, we present results for the simpler, phylogeny-only model.

When predicting Australian species' HPAI H5N1 susceptibility (defined as their predicted HPAI H5N1 notifications), the predominant groupings of predicted notifications were similar to that of the training model (Figure 2). The highest predicted HPAI H5N1 susceptibility was predicted for Australian Sulidae (gannets and boobies), followed by Anhingidae (darters), Laridae (gulls, terns and noddies), and Anatidae (ducks, geese, and swans). Based on global HPAI H5N1 notification data since 2021 and the family-level phylogeny, the model predicted 79 HPAI H5N1 notifications in Sulidae family members, followed by 54 in Anhingidae, 51 in Laridae, and 48 in Anatidae family members. Other Australian bird families, like Pelecanidae (pelicans), Corvidae (crows and ravens), and Falconidae (falcons, hobbies, and kestrels), were also predicted to be susceptible. Furthermore, some families endemic to Australia, such as Anseranatidae (containing the magpie goose – *Anseranas semipalmata*), were predicted to be moderately susceptible to HPAI H5N1 with a predicted 27 notifications. Predicted HPAI H5N1 notifications for all Australian bird families in our list are reported in Supporting Information Table S3.

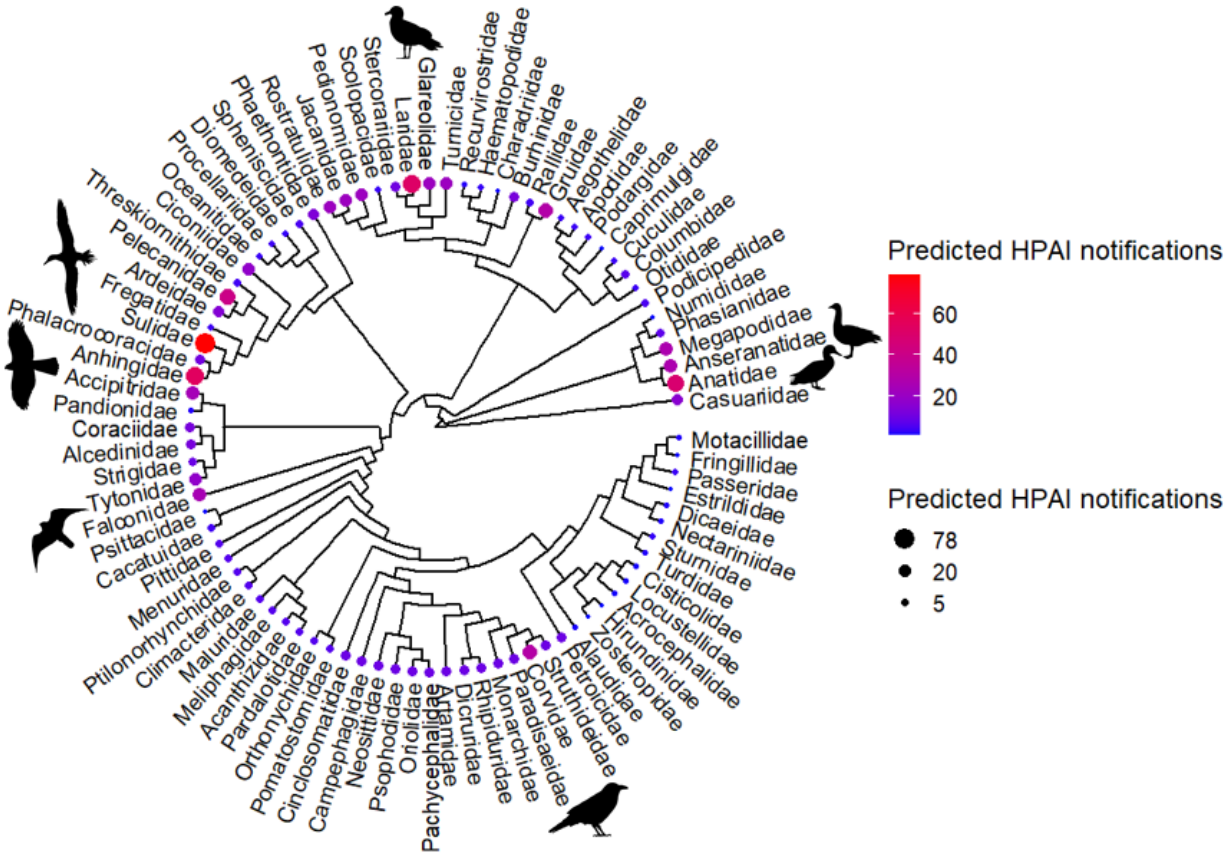

Figure 2. Predicted HPAI H5N1 susceptibility for Australian bird families. Each tip denotes a family, with the size and colour of the tip representing the predicted number of HPAI H5N1 notifications. A few key families are highlighted by inclusion of bird icons from phylopic.org, going clockwise from the top: Laridae, Anatidae, Corvidae, Falconidae, Accipitridae, and Sulidae.

Discussion

HPAI H5N1 2.3.4.4b has caused a panzootic of unprecedented scale [5], but has not yet spread to Australia [4]. Here, we modelled HPAI H5N1 notifications as a function of ecology and family-level phylogeny, finding that family-level phylogeny best explains number of HPAI H5N1 notifications. The importance of phylogeny in explaining avian influenza prevalence has been previously noted for low pathogenicity viruses [13], which we now expand for HPAI H5N1. Furthermore, we use phylogeny to predict HPAI H5N1 notifications in Australian birds (including for Australian endemic birds), as a metric of susceptibility to HPAI H5N1 infection and resulting disease once it reaches the continent.

While transmission of HPAI H5N1 is believed to link to ecological traits related to e.g. (aquatic) habitat choice, (dabbling) foraging strategies, predation, and congregation, including these ecological traits in our model did not significantly improve model fit. However, we do not believe the support for our phylogeny-only model means that ecological traits are not important – rather, there are specific traits as well as combinations of traits yielding scenarios of probable disease transmission that are likely captured by the family-level phylogeny. For example, Anatidae (ducks, geese, and swans) have a high number of HPAI notifications globally and are among the families predicted to be most susceptible to HPAI H5N1 in Australia, likely due to their aquatic lifestyle. Conversely, we hypothesized terrestrial birds to have lower HPAI H5N1 notifications due to largely avoiding contact with HPAI virus contaminated water, but many birds of prey (which have high HPAI H5N1 notifications) are terrestrial predators. This specific interaction between diet and habitat may be important in predicting HPAI H5N1 notifications, but it is captured already in the family-level phylogeny, as such traits tend to be shared across members of a family and even entire orders. The drawback of our approach is that the predicted HPAI H5N1 notifications are generalised across species in a family. Generalising across families may be especially penalizing for species that are ecological outliers compared to others within their family. For example, our study predicts high HPAI H5N1 notifications for the Australasian wood duck (*Chenonetta jubata*), despite its ecology differing from other ducks (it is an exclusively grazing duck, while many others engage in filter feeding and dabbling) and its previous identification as an outlier in having low LPAI virus and seroprevalence [13]. Despite such exceptions, our predictions can serve as an initial guideline of species likely to be impacted by HPAI H5N1, with additional information such as species' conservation status, population size, and a variety of site- and species-specific factors used to assess potential local impacts.

In our prediction of HPAI H5N1 susceptibility in Australian birds, we define susceptibility as the predicted number of HPAI H5N1 notification for a taxonomic family (where high numbers of predicted HPAI H5N1 notifications is interpreted as high susceptibility; with 79 HPAI H5N1 notifications in Sulidae being the highest score). This modelling is based

306 on data of “outbreak notifications” from WOAH WAHIS since October 2021 (the onset of
307 the current panzootic), where most (~98%) species with notifications also have
308 reported deaths from HPAI. This means that our predicted HPAI H5N1 susceptibility
309 reflects how easily different birds become infected and subsequently die of HPAI.
310 However, our susceptibility predictions largely ignore the role of different birds in
311 maintaining and spreading HPAI H5N1, since different species might carry the virus and
312 survive for different lengths of time. For example, bald eagles (*Haliaeetus*
313 *leucocephalus*) had higher HPAI H5N1 seroprevalence (indicating higher survival rate)
314 than other birds of prey [29], and HPAI antibodies in seabird eggs were higher in
315 common eiders compared to other seabird species (such as gannets, which suffered
316 HPAI-related mass mortality events; [30]). This suggests that species can play different
317 roles in maintenance and spread of HPAI H5N1 after exposure to the virus, which is
318 important to consider when predicting HPAI H5N1 susceptibility.
319
320 In this study, we used a family-level phylogeny to avoid biases associated with
321 particular outlier species. Our approach may still carry some inherent biases, for
322 example if a family is very speciose, very abundant, or contains very commonly
323 sampled species. However, when comparing the mean number of HPAI H5N1
324 notifications per family to the number of species in that family, the correlation was low
325 (R^2 = -0.06), meaning it is unlikely biases related to number of species in a family are
326 entirely driving our predictions. Indeed, because we analysed the data using the family-
327 level phylogeny that considers HPAI H5N1 notifications across a family (rather than just
328 the total), we avoid some of the exaggerated total HPAI H5N1 notifications associated
329 with very speciose and common families like Anatidae and Laridae (Figure 1). However,
330 it may also be argued that this introduces its own form of bias, if it “punishes” the HPAI
331 H5N1 susceptibility predictions for speciose and common families (hence why our
332 model predicts Sulidae, rather than Anatidae, to be the most susceptible Australian
333 family; Figure 1). It is also worth noting that our approach is inherently biased by people
334 sampling for and reporting notifications of HPAI H5N1, where real numbers of HPAI
335 H5N1 likely exceed recorded notifications by an order of magnitude [5]. Furthermore,
336 differences in sampling effort between regions may exacerbate such biases, if certain

337 families are more common in sparsely sampled regions and are thus more less
338 represented in WAHIS [12].
339
340 Partly because of biases in testing and reporting HPAI H5N1 outbreaks, we did not
341 employ a presence/absence approach to modelling HPAI H5N1 notifications and
342 predicting susceptibility in Australian species. Because of testing and reporting bias, we
343 cannot assume that species absent from the WAHIS dataset of HPAI H5N1 notifications
344 truly never had cases of HPAI H5N1, and thus we cannot assume that HPAI is absent.
345 However, our approach of using numbers of HPAI H5N1 notifications still suffers from
346 part of this bias and is likely to have influenced some of our predictions for Australian
347 species. For example, Anhingidae (darters) are amongst families with the highest
348 predicted notifications in Australia, but their non-Australian species are not currently
349 represented in the WAHIS database. However, the American darter's (*Anhinga anhinga*)
350 distribution includes regions severely impacted by the current panzootic, making it
351 likely the species has encountered the virus but that it just has not been detected,
352 tested and reported to WAHIS. The family's lack of representation in WAHIS means the
353 model used the Anhingidae phylogenetic information, and its proximity to Sulidae and
354 Phalacrocoracidae (the latter of which is also underestimated in WAHIS; [31]), to
355 estimate a value between the two other families. The lack of Anhingidae representation
356 in the WAHIS database, despite its probable interface with the virus, means the model
357 may have over-estimated the susceptibility of Australasian darters to HPAI H5N1 based
358 on its relationship to Sulidae. An opposite scenario may also be possible and potentially
359 detrimental: in some cases, our model may have falsely predicted a family as *not*
360 susceptible to HPAI H5N1. This further highlights the importance of not relying on our
361 predicted susceptibility in isolation, but also considering additional information. The
362 wide host range of the current panzootic highlights that all species are capable of
363 contracting the virus. However, lack of notifications and our assumptions of relative
364 completeness in the WAHIS database impacts our predictions for Australian families
365 susceptible to HPAI H5N1.
366
367 In our analysis, adding ecological traits like diet and habitat did not significantly improve
368 the predictability of HPAI H5N1 notifications above our null, phylogeny-only model.

However, this does not mean those traits are not still important to consider when assessing virus incursion into new ranges, like Oceania. For example, traits like colony-breeding can amplify the risk to a species if the virus is able to spread rapidly through a large number of birds [16]. Australia hosts big breeding colonies of gannets, shearwaters, and other notable seabirds, which might expose them to the same colony-wide mass mortalities noted elsewhere [6, 31, 32]. Indeed, in our phylogeny-based predictions of HPAI H5N1 notifications in Australian birds, half of the top 50 birds are colony breeders. Therefore, even if dense flocking behaviour was not a major predictor of HPAI H5N1 notifications in our analysis, it is a trait worth bearing in mind when considering conservation impacts of HPAI H5N1 upon arrival in Australia.

A strength of our phylogeny-based approach to model and predict HPAI notifications is that it likely captures similarity in immune architecture between closely related species, in addition to the ecological similarities it captures. However, there are notable exceptions to the expectation that closely related species share genomic similarities. Such differences in species' immune architecture may influence their final susceptibility to HPAI, and thus represents another aspect worth considering when predicting HPAI H5N1 susceptibility in new ranges [33]. For example, the Australian black swan (*Cygnus atratus*) is more vulnerable to HPAI than white swans and some geese [33], likely because it lacks receptors for viral pattern recognition and has a poor immune response to HPAI [34]. These differences set black swans apart even from closely related species, like the mute swan (*Cygnus olor*). Should similar deficiencies in immune system architecture exist for other Australian birds, it is possible the HPAI H5N1 susceptibility for some Australian birds is underestimated in our analysis. While our predictions of Australian species' susceptibility to HPAI H5N1 can function as an important indicator of what is to come, expanded genomic and transcriptomic testing can further fine-tune such predictions.

Among other factors that can be important to consider when predicting HPAI H5N1 susceptibility in Australian birds is conservation status, where rampant disease spread may have a larger impact on more vulnerable populations. In Australian species with highest predicted HPAI H5N1 notifications (within the top 50 predicted HPAI H5N1

notifications), all but two are listed as Least Concern on the IUCN Red List status. Only the fairy tern (*Sternula nereis*) and the sarus crane (*Grus antigone*) are listed as Vulnerable. However, expanding this to species predicted to be moderately susceptible to HPAI H5N1 (top 80 predicted disease notifications), there is one species listed as Endangered (red goshawk – *Erythrotriorchis radiatus*), two additional birds listed as Vulnerable (grey falcon – *Falco hypoleucos* and malleefowl – *Leipoa ocellata*), and one Near Threatened (letter-winged kite – *Elanus scriptus*). It is notable that most of these are birds of prey, suggesting that while HPAI H5N1 is primarily predicted to impact waterbirds, the notable conservation impacts of HPAI H5N1 incursion into Australia may focus on predators. The impact to predators might be similar to effects seen elsewhere, such as declining peregrine falcon (*Falco peregrinus*) populations in the Netherlands, where over 80% of tested dead birds were infected with HPAI H5N1 [35]. Conservation vulnerability of predators to HPAI H5N1 also underscores the potential conservation concerns to mammalian predators [17], as has been noted in South American pinnipeds [36].

Conclusion

HPAI H5N1 has dramatically impacted wildlife in the wake of its spread across the world. While it has infected an unprecedented diversity of species, we found that a family-level phylogeny was sufficient to explain HPAI H5N1 notifications in wild birds, potentially because ecological traits are often conserved across members of a family. Using this same phylogeny to predict HPAI H5N1 notifications in Australian birds, where the virus has yet to spread, we are able to predict that Sulidae, Laridae, and Anatidae family members are likely to be most susceptible to HPAI H5N1. Similarly, we are able to predict susceptibility in Australian endemic families, such as the magpie geese (*Anseranas semipalmata*). Such predictions may provide important support for those undertaking planning for HPAI H5N1 incursion into Australia. Evaluating the accuracy of such predictions (and the method used to generate them) will only be possible once HPAI H5N1 does indeed reach Australian shores, and relies on continued and expanding monitoring efforts.

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Supporting information

Table S1: Species ecological traits used in our phylogenetic generalised linear mixed models of HPAI notifications.

Table S2: Australian species ecological traits used in our prediction of Australian species' susceptibility to HPAI

Table S3: HPAI susceptibility of Australian bird families, as indicated by the predicted number of disease notifications

Figure S1: LOO ELPD estimates of the full model with ecological traits and the null, phylogeny-only model

Table S1: Species ecological traits used in our phylogenetic generalised linear mixed models of HPAI notifications. Species are listed by their binomial name, their common name, and their taxonomic family. Traits include whether they congregate or not (Y/N), their general habitat, and their general diet.

Species binomial name	Species common name	Family	Congregator?	Habitat Grouping	Diet Grouping
Anthropoides virgo	Demoiselle Crane	Gruidae	Y	Terrestrial	Omnivore
Catharacta antarctica	Brown Skua	Stercorariidae	Y	Marine/Coastal	Predator
Catharacta chilensis	Chilean Skua	Stercorariidae	Y	Marine/Coastal	Predator
Catharacta maccormicki	South Polar Skua	Stercorariidae	Y	Marine/Coastal	Predator
Catharacta skua	Great Skua	Stercorariidae	Y	Marine/Coastal	Predator
Circus aeruginosus	Western Marsh Harrier	Accipitridae	Y	Freshwater	Predator
Clangula hyemalis	Long-tailed Duck	Anatidae	Y	Freshwater	Predator
Corvus cornix	Hooded Crow	Corvidae	N	Terrestrial	Omnivore
Corvus monedula	Western Jackdaw	Corvidae	N	Terrestrial	Omnivore
Erithacus rubecula	European Robin	Muscicapidae	N	Terrestrial	Omnivore
Euphagus cyanocephalus	Brewer's Blackbird	Icteridae	N	Terrestrial	Omnivore
Lagopus lagopus	Willow Ptarmigan	Phasianidae	N	Terrestrial	Plant-based diet
Larus atricilla	Laughing Gull	Laridae	Y	Marine/Coastal	Predator
Larus audouinii	Audouin's Gull	Laridae	Y	Marine/Coastal	Predator
Larus brachyrhynchus	Short-billed Gull	Laridae	Y	Marine/Coastal	Predator
Larus ichthyaetus	Pallas's Gull	Laridae	Y	Marine/Coastal	Omnivore
Larus melanocephalus	Mediterranean Gull	Laridae	Y	Marine/Coastal	Omnivore
Larus modestus	Grey Gull	Laridae	Y	Marine/Coastal	Predator
Larus pipixcan	Franklin's Gull	Laridae	Y	Marine/Coastal	Omnivore
Leucocarbo bougainvilliorum	Guanay Cormorant	Phalacrocoracidae	N	Marine/Coastal	Predator
Melospiza melodia	Song Sparrow	Passerellidae	N	Terrestrial	Omnivore
Nannopterum auritus	Double-crested Cormorant	Phalacrocoracidae	N	Marine/Coastal	Predator
Nannopterum brasilianus	Neotropic Cormorant	Phalacrocoracidae	N	Freshwater	Predator
Nannopterum brasilianus	Neotropic Cormorant	Phalacrocoracidae	N	Freshwater	Predator
Passerculus sandwichensis	Savannah Sparrow	Passerellidae	N	Terrestrial	Omnivore
Phalacrocorax lucidus	White-breasted Cormorant	Phalacrocoracidae	Y	Freshwater	Predator

Phalcoboenus chimango	Chimango Caracara	Falconidae	N	Terrestrial	Omnivore
Picus viridis	European Green Woodpecker	Picidae	N	Terrestrial	Predator
Pygoscelis papua	Gentoo Penguin	Spheniscidae	Y	Marine/Coastal	Predator
Scolopax rusticola	Eurasian Woodcock	Scolopacidae	Y	Terrestrial	Omnivore
Sylvia atricapilla	Eurasian Blackcap	Sylviidae	N	Terrestrial	Omnivore
Thalasseus acuflavidus	Cabot's Tern	Laridae	Y	Marine/Coastal	Predator
Zenaida asiatica	White-winged Dove	Columbidae	N	Terrestrial	Plant-based diet
Accipiter brachyurus	New Britain Sparrowhawk	Accipitridae	N	Terrestrial	Predator
Accipiter cooperii	Cooper's Hawk	Accipitridae	N	Terrestrial	Predator
Accipiter gentilis	Northern Goshawk	Accipitridae	N	Terrestrial	Predator
Accipiter gentilis	Northern Goshawk	Accipitridae	N	Terrestrial	Predator
Accipiter gularis	Japanese Sparrowhawk	Accipitridae	N	Terrestrial	Predator
Accipiter nisus	Eurasian Sparrowhawk	Accipitridae	N	Terrestrial	Predator
Accipiter striatus	Sharp-shinned Hawk	Accipitridae	N	Terrestrial	Predator
Aechmophorus occidentalis	Western Grebe	Podicipedidae	Y	Freshwater	Predator
Aegolius acadicus	Northern Saw-whet Owl	Strigidae	N	Terrestrial	Predator
Agelaius phoeniceus	Red-winged Blackbird	Icteridae	Y	Freshwater	Omnivore
Aix galericulata	Mandarin Duck	Anatidae	Y	Terrestrial	Omnivore
Aix sponsa	Wood Duck	Anatidae	Y	Freshwater	Omnivore
Alca torda	Razorbill	Alcidae	Y	Marine/Coastal	Predator
Alectoris rufa	Red-legged Partridge	Phasianidae	N	Terrestrial	Plant-based diet
Alle alle	Little Auk	Alcidae	Y	Marine/Coastal	Predator
Alopochen aegyptiaca	Egyptian Goose	Anatidae	Y	Freshwater	Omnivore
Amazona ochrocephala	Yellow-crowned Amazon	Psittacidae	N	Terrestrial	Omnivore
Anas acuta	Northern Pintail	Anatidae	Y	Freshwater	Omnivore
Anas carolinensis	Green-winged Teal	Anatidae	Y	Freshwater	Omnivore
Anas crecca	Eurasian Teal	Anatidae	Y	Freshwater	Omnivore
Anas flavirostris	Yellow-billed Teal	Anatidae	Y	Freshwater	Omnivore
Anas fulvigula	Mottled Duck	Anatidae	Y	Freshwater	Omnivore
Anas platyrhynchos	Mallard	Anatidae	Y	Freshwater	Omnivore
Anas poecilorhyncha	Indian Spot-billed Duck	Anatidae	Y	Freshwater	Omnivore

Anas rubripes	American Black Duck	Anatidae	Y	Freshwater	Omnivore
Anser albifrons	Greater White-fronted Goose	Anatidae	Y	Terrestrial	Plant-based diet
Anser anser	Greylag Goose	Anatidae	Y	Freshwater	Plant-based diet
Anser brachyrhynchus	Pink-footed Goose	Anatidae	Y	Terrestrial	Plant-based diet
Anser caerulescens	Snow Goose	Anatidae	Y	Terrestrial	Plant-based diet
Anser erythropus	Lesser White-fronted Goose	Anatidae	Y	Terrestrial	Plant-based diet
Anser fabalis	Taiga Bean Goose	Anatidae	Y	Freshwater	Plant-based diet
Anser rossii	Ross's Goose	Anatidae	Y	Freshwater	Plant-based diet
Antigone canadensis	Sandhill Crane	Gruidae	Y	Freshwater	Omnivore
Antigone vipio	White-naped Crane	Gruidae	Y	Freshwater	Omnivore
Aquila chrysaetos	Golden Eagle	Accipitridae	N	Terrestrial	Predator
Aquila fasciata	Bonelli's Eagle	Accipitridae	N	Terrestrial	Predator
Aquila heliaca	Eastern Imperial Eagle	Accipitridae	N	Terrestrial	Predator
Ara macao	Scarlet Macaw	Psittacidae	Y	Terrestrial	Omnivore
Ardea alba	Great Egret	Ardeidae	Y	Freshwater	Predator
Ardea cinerea	Grey Heron	Ardeidae	Y	Freshwater	Predator
Ardea cocoi	Cocoi Heron	Ardeidae	Y	Freshwater	Predator
Ardea herodias	Great Blue Heron	Ardeidae	Y	Freshwater	Predator
Ardenna gravis	Great Shearwater	Procellariidae	Y	Marine/Coastal	Predator
Ardenna grisea	Sooty Shearwater	Procellariidae	Y	Marine/Coastal	Predator
Ardenna tenuirostris	Short-tailed Shearwater	Procellariidae	Y	Marine/Coastal	Predator
Arenaria interpres	Ruddy Turnstone	Scolopacidae	Y	Marine/Coastal	Predator
Arenaria melanocephala	Black Turnstone	Scolopacidae	Y	Marine/Coastal	Predator
Asio flammeus	Short-eared Owl	Strigidae	N	Terrestrial	Predator
Asio otus	Long-eared Owl	Strigidae	N	Terrestrial	Predator
Athene noctua	Little Owl	Strigidae	N	Terrestrial	Omnivore
Aythya affinis	Lesser Scaup	Anatidae	Y	Freshwater	Omnivore
Aythya americana	Redhead	Anatidae	Y	Freshwater	Omnivore
Aythya collaris	Ring-necked Duck	Anatidae	Y	Freshwater	Omnivore
Aythya ferina	Common Pochard	Anatidae	Y	Freshwater	Omnivore
Aythya fuligula	Tufted Duck	Anatidae	Y	Freshwater	Omnivore
Aythya marila	Greater Scaup	Anatidae	Y	Freshwater	Omnivore
Aythya valisineria	Canvasback	Anatidae	Y	Freshwater	Omnivore
Balearica regulorum	Grey Crowned Crane	Gruidae	Y	Freshwater	Omnivore

Bonasa umbellus	Ruffed Grouse	Phasianidae	N	Terrestrial	Plant-based diet
Branta bernicla	Brant Goose	Anatidae	Y	Terrestrial	Plant-based diet
Branta canadensis	Canada Goose	Anatidae	Y	Terrestrial	Plant-based diet
Branta hutchinsii	Cackling Goose	Anatidae	Y	Terrestrial	Plant-based diet
Branta leucopsis	Barnacle Goose	Anatidae	Y	Terrestrial	Plant-based diet
Branta ruficollis	Red-breasted Goose	Anatidae	Y	Terrestrial	Plant-based diet
Branta sandvicensis	Nene	Anatidae	N	Terrestrial	Plant-based diet
Bubo bubo	Eurasian Eagle-Owl	Strigidae	N	Terrestrial	Predator
Bubo scandiacus	Snowy Owl	Strigidae	N	Terrestrial	Predator
Bubo virginianus	Great Horned Owl	Strigidae	N	Terrestrial	Predator
Bubulcus ibis	Western Cattle Egret	Ardeidae	Y	Terrestrial	Omnivore
Bucephala albeola	Bufflehead	Anatidae	Y	Freshwater	Omnivore
Bucephala clangula	Common Goldeneye	Anatidae	Y	Freshwater	Omnivore
Buteo buteo	Common Buzzard	Accipitridae	N	Terrestrial	Predator
Buteo jamaicensis	Red-tailed Hawk	Accipitridae	N	Terrestrial	Predator
Buteo japonicus	Eastern Buzzard	Accipitridae	N	Terrestrial	Predator
Buteo lagopus	Rough-legged Buzzard	Accipitridae	N	Terrestrial	Predator
Buteo lineatus	Red-shouldered Hawk	Accipitridae	N	Terrestrial	Predator
Buteo platypterus	Broad-winged Hawk	Accipitridae	N	Terrestrial	Predator
Buteo regalis	Ferruginous Hawk	Accipitridae	N	Terrestrial	Predator
Buteo swainsoni	Swainson's Hawk	Accipitridae	Y	Terrestrial	Predator
Buteogallus urubitinga	Great Black Hawk	Accipitridae	N	Terrestrial	Predator
Cairina moschata	Muscovy Duck	Anatidae	Y	Freshwater	Omnivore
Calamospiza melanocorys	Lark Bunting	Passerellidae	Y	Terrestrial	Omnivore
Calidris alba	Sanderling	Scolopacidae	Y	Marine/Coastal	Predator
Calidris alpina	Dunlin	Scolopacidae	Y	Freshwater	Predator
Calidris canutus	Red Knot	Scolopacidae	Y	Marine/Coastal	Predator
Calidris fuscicollis	White-rumped Sandpiper	Scolopacidae	Y	Freshwater	Predator
Calidris maritima	Purple Sandpiper	Scolopacidae	Y	Terrestrial	Predator
Calidris mauri	Western Sandpiper	Scolopacidae	Y	Terrestrial	Predator
Calidris pusilla	Semipalmated Sandpiper	Scolopacidae	Y	Terrestrial	Predator

Callipepla californica	California Quail	Odontophoridae	N	Terrestrial	Omnivore
Caprimulgus fossii	Square-tailed Nightjar	Caprimulgidae	N	Terrestrial	Predator
Caracara plancus	Crested Caracara	Falconidae	N	Terrestrial	Omnivore
Caracara plancus	Crested Caracara	Falconidae	N	Terrestrial	Omnivore
Carduelis carduelis	European Goldfinch	Fringillidae	N	Terrestrial	Plant-based diet
Cathartes aura	Turkey Vulture	Cathartidae	Y	Terrestrial	Predator
Centrocercus urophasianus	Sage Grouse	Phasianidae	N	Terrestrial	Plant-based diet
Cepphus grylle	Black Guillemot	Alcidae	Y	Marine/Coastal	Predator
Charadrius hiaticula	Common Ringed Plover	Charadriidae	Y	Marine/Coastal	Predator
Charadrius mongolus	Lesser Sand Plover	Charadriidae	Y	Freshwater	Predator
Charadrius nivosus	Snowy Plover	Charadriidae	Y	Marine/Coastal	Predator
Chlidonias hybrida	Whiskered Tern	Laridae	Y	Freshwater	Predator
Chloephaga melanoptera	Andean Goose	Anatidae	Y	Freshwater	Plant-based diet
Chloephaga picta	Upland Goose	Anatidae	Y	Terrestrial	Plant-based diet
Chloris chloris	European Greenfinch	Fringillidae	N	Terrestrial	Plant-based diet
Chondestes grammacus	Lark Sparrow	Passerellidae	Y	Terrestrial	Omnivore
Ciconia boyciana	Oriental Stork	Ciconiidae	Y	Freshwater	Predator
Ciconia ciconia	White Stork	Ciconiidae	Y	Terrestrial	Predator
Ciconia nigra	Black Stork	Ciconiidae	Y	Terrestrial	Predator
Circus assimilis	Spotted Harrier	Accipitridae	N	Terrestrial	Predator
Circus cyaneus	Hen Harrier	Accipitridae	Y	Terrestrial	Predator
Circus pygargus	Montagu's Harrier	Accipitridae	Y	Terrestrial	Predator
Columba livia	Rock Dove	Columbidae	Y	Terrestrial	Plant-based diet
Columba palumbus	Common Wood Pigeon	Columbidae	Y	Terrestrial	Omnivore
Columbina inca	Inca Dove	Columbidae	Y	Terrestrial	Plant-based diet
Coragyps atratus	Black Vulture	Cathartidae	Y	Terrestrial	Predator
Corvus albus	Pied Crow	Corvidae	N	Terrestrial	Omnivore
Corvus brachyrhynchos	American Crow	Corvidae	Y	Terrestrial	Omnivore
Corvus brachyrhynchos	American Crow	Corvidae	Y	Terrestrial	Omnivore
Corvus corax	Northern Raven	Corvidae	N	Terrestrial	Omnivore
Corvus corone	Carrion Crow	Corvidae	N	Terrestrial	Omnivore
Corvus frugilegus	Rook	Corvidae	Y	Terrestrial	Omnivore

Corvus macrorhynchos	Large-billed Crow	Corvidae	Y	Terrestrial	Omnivore
Corvus ossifragus	Fish Crow	Corvidae	Y	Marine/Coastal	Omnivore
Corvus splendens	House Crow	Corvidae	Y	Terrestrial	Omnivore
Coscoroba coscoroba	Coscoroba Swan	Anatidae	Y	Freshwater	Omnivore
Cyanocitta cristata	Blue Jay	Corvidae	N	Terrestrial	Omnivore
Cyanoliseus patagonus	Burrowing Parrot	Psittacidae	Y	Terrestrial	Omnivore
Cygnus atratus	Black Swan	Anatidae	Y	Freshwater	Plant-based diet
Cygnus buccinator	Trumpeter Swan	Anatidae	Y	Freshwater	Plant-based diet
Cygnus columbianus	Tundra Swan	Anatidae	Y	Freshwater	Plant-based diet
Cygnus columbianus	Tundra Swan	Anatidae	Y	Freshwater	Plant-based diet
Cygnus cygnus	Whooper Swan	Anatidae	Y	Freshwater	Plant-based diet
Cygnus melancoryphus	Black-necked Swan	Anatidae	Y	Freshwater	Plant-based diet
Cygnus olor	Mute Swan	Anatidae	Y	Freshwater	Plant-based diet
Dendrocopos major	Great Spotted Woodpecker	Picidae	N	Terrestrial	Omnivore
Dendrocygna bicolor	Fulvous Whistling Duck	Anatidae	Y	Freshwater	Omnivore
Dendrocygna viduata	White-faced Whistling Duck	Anatidae	Y	Freshwater	Omnivore
Egretta caerulea	Little Blue Heron	Ardeidae	Y	Freshwater	Predator
Egretta garzetta	Little Egret	Ardeidae	Y	Freshwater	Predator
Egretta thula	Snowy Egret	Ardeidae	Y	Freshwater	Predator
Enicognathus ferrugineus	Austral Parakeet	Psittacidae	N	Terrestrial	Omnivore
Enicognathus leptorhynchus	Slender-billed Parakeet	Psittacidae	Y	Terrestrial	Omnivore
Eudyptes chrysocome	Southern Rockhopper Penguin	Spheniscidae	Y	Marine/Coastal	Predator
Falco biarmicus	Lanner Falcon	Falconidae	N	Terrestrial	Predator
Falco cherrug	Saker Falcon	Falconidae	N	Terrestrial	Predator
Falco columbarius	Merlin	Falconidae	N	Terrestrial	Predator
Falco mexicanus	Prairie Falcon	Falconidae	N	Terrestrial	Predator
Falco peregrinus	Peregrine Falcon	Falconidae	N	Terrestrial	Predator
Falco rusticolus	Gyrfalcon	Falconidae	N	Terrestrial	Predator
Falco sparverius	American Kestrel	Falconidae	N	Terrestrial	Predator
Falco tinnunculus	Common Kestrel	Falconidae	N	Terrestrial	Predator
Fratercula arctica	Atlantic Puffin	Alcidae	Y	Marine/Coastal	Predator

Fregata magnificens	Magnificent Frigatebird	Fregatidae	Y	Marine/Coastal	Predator
Fregata minor	Great Frigatebird	Fregatidae	Y	Marine/Coastal	Predator
Fringilla coelebs	Common Chaffinch	Fringillidae	N	Terrestrial	Predator
Fulica americana	American Coot	Rallidae	Y	Freshwater	Plant-based diet
Fulica armillata	Red-gartered Coot	Rallidae	Y	Freshwater	Plant-based diet
Fulica atra	Eurasian Coot	Rallidae	Y	Freshwater	Plant-based diet
Fulmarus glacialis	Northern Fulmar	Procellariidae	Y	Marine/Coastal	Predator
Fulmarus glacialoides	Southern Fulmar	Procellariidae	Y	Marine/Coastal	Predator
Gallinago gallinago	Common Snipe	Scolopacidae	Y	Freshwater	Predator
Gallinago stenura	Pin-tailed Snipe	Scolopacidae	Y	Freshwater	Predator
Gallinula chloropus	Common Moorhen	Rallidae	Y	Freshwater	Omnivore
Gallus gallus	Red Junglefowl	Phasianidae	N	Terrestrial	Omnivore
Garrulus glandarius	Eurasian Jay	Corvidae	N	Terrestrial	Omnivore
Gavia immer	Common Loon	Gaviidae	Y	Freshwater	Predator
Gavia pacifica	Pacific Loon	Gaviidae	Y	Freshwater	Predator
Gavia stellata	Red-throated Loon	Gaviidae	Y	Freshwater	Predator
Gelochelidon nilotica	Gull-billed Tern	Laridae	Y	Marine/Coastal	Predator
Geranoaetus melanoleucus	Black-chested Buzzard-Eagle	Accipitridae	N	Terrestrial	Predator
Geranoaetus polyosoma	Variable Hawk	Accipitridae	N	Terrestrial	Predator
Geronticus eremita	Northern Bald Ibis	Threskiornithidae	Y	Terrestrial	Predator
Grus grus	Common Crane	Gruidae	Y	Freshwater	Omnivore
Grus japonensis	Red-crowned Crane	Gruidae	Y	Freshwater	Omnivore
Grus monacha	Hooded Crane	Gruidae	Y	Freshwater	Omnivore
Gymnogyps californianus	California Condor	Cathartidae	N	Terrestrial	Predator
Gypaetus barbatus	Bearded Vulture	Accipitridae	N	Terrestrial	Predator
Gyps fulvus	Griffon Vulture	Accipitridae	Y	Terrestrial	Predator
Haematopus ater	Blackish Oystercatcher	Haematopodidae	Y	Marine/Coastal	Predator
Haematopus moquini	African Oystercatcher	Haematopodidae	Y	Marine/Coastal	Predator
Haematopus ostralegus	Eurasian Oystercatcher	Haematopodidae	Y	Marine/Coastal	Predator
Haematopus palliatus	American Oystercatcher	Haematopodidae	Y	Marine/Coastal	Predator

Haliaeetus albicilla	White-tailed Eagle	Accipitridae	Y	Terrestrial	Predator
Haliaeetus leucocephalus	Bald Eagle	Accipitridae	Y	Freshwater	Predator
Haliaeetus pelagicus	Steller's Sea Eagle	Accipitridae	Y	Freshwater	Predator
Hirundo rustica	Barn Swallow	Hirundinidae	Y	Terrestrial	Predator
Hydroprogne caspia	Caspian Tern	Laridae	Y	Freshwater	Predator
Junco hyemalis	Dark-eyed Junco	Passerellidae	N	Terrestrial	Plant-based diet
Larosterna inca	Inca Tern	Laridae	Y	Marine/Coastal	Predator
Larus argentatus	European Herring Gull	Laridae	Y	Marine/Coastal	Predator
Larus armenicus	Armenian Gull	Laridae	Y	Freshwater	Predator
Larus belcheri	Belcher's Gull	Laridae	Y	Marine/Coastal	Predator
Larus brunnicephalus	Brown-headed Gull	Laridae	Y	Freshwater	Predator
Larus cachinnans	Caspian Gull	Laridae	Y	Marine/Coastal	Predator
Larus californicus	California Gull	Laridae	Y	Marine/Coastal	Predator
Larus canus	Common Gull	Laridae	Y	Marine/Coastal	Predator
Larus cirrocephalus	Grey-headed Gull	Laridae	Y	Freshwater	Predator
Larus delawarensis	Ring-billed Gull	Laridae	Y	Marine/Coastal	Predator
Larus dominicanus	Kelp Gull	Laridae	Y	Marine/Coastal	Predator
Larus fuscus	Lesser Black-backed Gull	Laridae	Y	Marine/Coastal	Omnivore
Larus genei	Slender-billed Gull	Laridae	Y	Marine/Coastal	Predator
Larus glaucescens	Glaucous-winged Gull	Laridae	Y	Marine/Coastal	Predator
Larus glaucoides	Iceland Gull	Laridae	Y	Marine/Coastal	Predator
Larus glaucoides	Iceland Gull	Laridae	Y	Marine/Coastal	Predator
Larus hartlaubii	Hartlaub's Gull	Laridae	Y	Marine/Coastal	Predator
Larus hyperboreus	Glaucous Gull	Laridae	Y	Marine/Coastal	Omnivore
Larus maculipennis	Brown-hooded Gull	Laridae	Y	Freshwater	Predator
Larus marinus	Great Black-backed Gull	Laridae	Y	Marine/Coastal	Predator
Larus michahellis	Yellow-legged Gull	Laridae	Y	Marine/Coastal	Predator
Larus novaehollandiae	Silver Gull	Laridae	Y	Marine/Coastal	Omnivore
Larus novaehollandiae	Silver Gull	Laridae	Y	Marine/Coastal	Omnivore
Larus occidentalis	Western Gull	Laridae	Y	Marine/Coastal	Predator
Larus philadelphia	Bonaparte's Gull	Laridae	Y	Freshwater	Predator
Larus ridibundus	Black-headed Gull	Laridae	Y	Freshwater	Predator
Larus ridibundus	Black-headed Gull	Laridae	Y	Freshwater	Predator

Larus schistisagus	Slaty-backed Gull	Laridae	Y	Marine/Coastal	Predator
Larus smithsonianus	American Herring Gull	Laridae	Y	Marine/Coastal	Predator
Leucocarbo atriceps	Imperial Shag	Phalacrocoracidae	Y	Marine/Coastal	Predator
Leucocarbo magellanicus	Rock Shag	Phalacrocoracidae	Y	Marine/Coastal	Predator
Lophodytes cucullatus	Hooded Merganser	Anatidae	Y	Freshwater	Predator
Lophura nycthemera	Silver Pheasant	Phasianidae	N	Terrestrial	Omnivore
Macronectes giganteus	Southern Giant Petrel	Procellariidae	Y	Marine/Coastal	Predator
Mareca americana	American Wigeon	Anatidae	Y	Freshwater	Omnivore
Mareca falcata	Falcated Duck	Anatidae	Y	Freshwater	Omnivore
Mareca penelope	Eurasian Wigeon	Anatidae	Y	Freshwater	Omnivore
Mareca strepera	Gadwall	Anatidae	Y	Freshwater	Omnivore
Marmaronetta angustirostris	Marbled Duck	Anatidae	Y	Freshwater	Omnivore
Megascops asio	Eastern Screech Owl	Strigidae	N	Terrestrial	Predator
Megascops choliba	Tropical Screech Owl	Strigidae	N	Terrestrial	Predator
Megascops kennicottii	Western Screech Owl	Strigidae	N	Terrestrial	Predator
Melanitta fusca	Velvet Scoter	Anatidae	Y	Freshwater	Predator
Melanitta nigra	Common Scoter	Anatidae	Y	Freshwater	Predator
Melanitta perspicillata	Surf Scoter	Anatidae	Y	Freshwater	Predator
Meleagris gallopavo	Wild Turkey	Phasianidae	N	Terrestrial	Omnivore
Mergus merganser	Common Merganser	Anatidae	Y	Freshwater	Predator
Mergus serrator	Red-breasted Merganser	Anatidae	Y	Freshwater	Predator
Microcarbo coronatus	Crowned Cormorant	Phalacrocoracidae	Y	Marine/Coastal	Predator
Milvus migrans	Black Kite	Accipitridae	Y	Terrestrial	Predator
Milvus milvus	Red Kite	Accipitridae	Y	Terrestrial	Predator
Morus bassanus	Northern Gannet	Sulidae	Y	Marine/Coastal	Predator
Morus capensis	Cape Gannet	Sulidae	Y	Marine/Coastal	Predator
Mycteria americana	Wood Stork	Ciconiidae	Y	Freshwater	Predator
Netta rufina	Red-crested Pochard	Anatidae	Y	Freshwater	Plant-based diet
Nisaetus nipalensis	Mountain Hawk-Eagle	Accipitridae	N	Terrestrial	Predator
Numenius arquata	Eurasian Curlew	Scolopacidae	Y	Terrestrial	Predator

Numenius phaeopus	Eurasian Whimbrel	Scolopacidae	Y	Marine/Coastal	Predator
Numida meleagris	Helmeted Guineafowl	Numididae	N	Terrestrial	Omnivore
Nycticorax nycticorax	Black-crowned Night Heron	Ardeidae	Y	Freshwater	Predator
Oxyura jamaicensis	Ruddy Duck	Anatidae	Y	Freshwater	Omnivore
Pachyptila desolata	Antarctic Prion	Procellariidae	Y	Marine/Coastal	Predator
Pandion haliaetus	Osprey	Pandionidae	Y	Marine/Coastal	Predator
Parabuteo unicinctus	Harris's Hawk	Accipitridae	N	Terrestrial	Predator
Passer domesticus	House Sparrow	Passeridae	Y	Terrestrial	Plant-based diet
Passer montanus	Eurasian Tree Sparrow	Passeridae	Y	Terrestrial	Plant-based diet
Pelecanus crispus	Dalmatian Pelican	Pelecanidae	Y	Freshwater	Predator
Pelecanus erythrorhynchos	American White Pelican	Pelecanidae	Y	Freshwater	Predator
Pelecanus occidentalis	Brown Pelican	Pelecanidae	Y	Marine/Coastal	Predator
Pelecanus onocrotalus	Great White Pelican	Pelecanidae	Y	Freshwater	Predator
Pelecanus thagus	Peruvian Pelican	Pelecanidae	Y	Marine/Coastal	Predator
Phalacrocorax capensis	Cape Cormorant	Phalacrocoracidae	Y	Marine/Coastal	Predator
Phalacrocorax carbo	Great Cormorant	Phalacrocoracidae	Y	Freshwater	Predator
Phalacrocorax punctatus	Spotted Shag	Phalacrocoracidae	Y	Marine/Coastal	Predator
Phalaropus lobatus	Red-necked Phalarope	Scolopacidae	Y	Freshwater	Predator
Phasianus colchicus	Common Pheasant	Phasianidae	N	Terrestrial	Omnivore
Phoebastria irrorata	Waved Albatross	Diomedeidae	Y	Marine/Coastal	Predator
Phoenicopterus chilensis	Chilean Flamingo	Phoenicopteridae	Y	Freshwater	Predator
Phoenicopterus roseus	Greater Flamingo	Phoenicopteridae	Y	Freshwater	Predator
Phylloscopus trochilus	Willow Warbler	Phylloscopidae	N	Terrestrial	Predator
Pica hudsonia	Black-billed Magpie	Corvidae	N	Terrestrial	Omnivore
Pica pica	Eurasian Magpie	Corvidae	N	Terrestrial	Omnivore
Piranga rubra	Summer Tanager	Cardinalidae	N	Terrestrial	Predator
Platalea ajaja	Roseate Spoonbill	Threskiornithidae	Y	Freshwater	Predator

Platalea leucorodia	Eurasian Spoonbill	Threskiornithidae	Y	Freshwater	Predator
Platalea minor	Black-faced Spoonbill	Threskiornithidae	Y	Marine/Coastal	Predator
Plegadis chihi	White-faced Ibis	Threskiornithidae	Y	Freshwater	Predator
Plegadis falcinellus	Glossy Ibis	Threskiornithidae	Y	Freshwater	Predator
Pluvialis dominica	American Golden Plover	Charadriidae	Y	Terrestrial	Predator
Pluvialis squatarola	Grey Plover	Charadriidae	Y	Terrestrial	Predator
Podiceps auritus	Horned Grebe	Podicipedidae	N	Freshwater	Predator
Podiceps cristatus	Great Crested Grebe	Podicipedidae	Y	Freshwater	Predator
Podiceps grisegena	Red-necked Grebe	Podicipedidae	Y	Freshwater	Predator
Podiceps major	Great Grebe	Podicipedidae	Y	Freshwater	Predator
Podiceps nigricollis	Black-necked Grebe	Podicipedidae	Y	Freshwater	Predator
Podilymbus podiceps	Pied-billed Grebe	Podicipedidae	N	Freshwater	Predator
Poikilocarbo gaimardi	Red-legged Cormorant	Phalacrocoracidae	N	Marine/Coastal	Predator
Procellaria aequinoctialis	White-chinned Petrel	Procellariidae	Y	Marine/Coastal	Predator
Pterodroma macroptera	Great-winged Petrel	Procellariidae	Y	Marine/Coastal	Predator
Puffinus puffinus	Manx Shearwater	Procellariidae	Y	Marine/Coastal	Predator
Pygochelidon cyanoleuca	Blue-and-white Swallow	Hirundinidae	N	Terrestrial	Predator
Pyrrhula pyrrhula	Eurasian Bullfinch	Fringillidae	N	Terrestrial	Omnivore
Quiscalus mexicanus	Great-tailed Grackle	Icteridae	Y	Terrestrial	Omnivore
Quiscalus quiscula	Common Grackle	Icteridae	Y	Freshwater	Omnivore
Rallus aquaticus	Water Rail	Rallidae	N	Freshwater	Omnivore
Rissa tridactyla	Black-legged Kittiwake	Laridae	Y	Marine/Coastal	Predator
Rupornis magnirostris	Roadside Hawk	Accipitridae	N	Terrestrial	Predator
Rynchops niger	Black Skimmer	Laridae	Y	Freshwater	Predator
Sagittarius serpentarius	Secretarybird	Sagittariidae	N	Terrestrial	Predator
Somateria mollissima	Common Eider	Anatidae	Y	Marine/Coastal	Predator
Spatula clypeata	Northern Shoveler	Anatidae	Y	Freshwater	Predator
Spatula cyanoptera	Cinnamon Teal	Anatidae	Y	Freshwater	Omnivore

Spatula cyanoptera	Cinnamon Teal	Anatidae	Y	Freshwater	Omnivore
Spatula discors	Blue-winged Teal	Anatidae	Y	Freshwater	Omnivore
Spatula querquedula	Garganey	Anatidae	Y	Freshwater	Omnivore
Spatula rhynchotis	Australasian Shoveler	Anatidae	Y	Freshwater	Omnivore
Spheniscus demersus	African Penguin	Spheniscidae	Y	Marine/Coastal	Predator
Spheniscus humboldti	Humboldt Penguin	Spheniscidae	Y	Marine/Coastal	Predator
Spilornis cheela	Crested Serpent Eagle	Accipitridae	N	Terrestrial	Predator
Stercorarius parasiticus	Parasitic Jaeger	Stercorariidae	Y	Marine/Coastal	Predator
Sterna dougallii	Roseate Tern	Laridae	Y	Marine/Coastal	Predator
Sterna forsteri	Forster's Tern	Laridae	Y	Freshwater	Predator
Sterna hirundinacea	South American Tern	Laridae	Y	Marine/Coastal	Predator
Sterna hirundo	Common Tern	Laridae	Y	Marine/Coastal	Predator
Sterna paradisaea	Arctic Tern	Laridae	Y	Marine/Coastal	Predator
Sternula albifrons	Little Tern	Laridae	Y	Marine/Coastal	Predator
Streptopelia decaocto	Eurasian Collared Dove	Columbidae	Y	Terrestrial	Omnivore
Streptopelia turtur	European Turtle Dove	Columbidae	N	Terrestrial	Plant-based diet
Strix aluco	Tawny Owl	Strigidae	N	Terrestrial	Predator
Strix nebulosa	Great Grey Owl	Strigidae	N	Terrestrial	Predator
Strix uralensis	Ural Owl	Strigidae	N	Terrestrial	Predator
Strix varia	Barred Owl	Strigidae	N	Terrestrial	Predator
Sturnus vulgaris	Common Starling	Sturnidae	Y	Terrestrial	Omnivore
Sula leucogaster	Brown Booby	Sulidae	Y	Marine/Coastal	Predator
Sula nebouxii	Blue-footed Booby	Sulidae	Y	Marine/Coastal	Predator
Sula sula	Red-footed Booby	Sulidae	Y	Marine/Coastal	Predator
Sula variegata	Peruvian Booby	Sulidae	Y	Marine/Coastal	Predator
Tachybaptus ruficollis	Little Grebe	Podicipedidae	Y	Freshwater	Predator
Tachycineta bicolor	Tree Swallow	Hirundinidae	Y	Freshwater	Predator
Tachyeres pteneres	Fuegian Steamer Duck	Anatidae	Y	Marine/Coastal	Predator
Tadorna ferruginea	Ruddy Shelduck	Anatidae	Y	Freshwater	Omnivore
Tadorna tadorna	Common Shelduck	Anatidae	Y	Marine/Coastal	Omnivore
Taeniopygia guttata	Sunda Zebra Finch	Estrildidae	Y	Terrestrial	Plant-based diet
Thalassarche melanophris	Black-browed Albatross	Diomedeidae	Y	Marine/Coastal	Predator

Thalasseus bergii	Greater Crested Tern	Laridae	Y	Marine/Coastal	Predator
Thalasseus elegans	Elegant Tern	Laridae	Y	Marine/Coastal	Predator
Thalasseus maximus	Royal Tern	Laridae	Y	Marine/Coastal	Predator
Thalasseus sandvicensis	Sandwich Tern	Laridae	Y	Marine/Coastal	Predator
Tringa flavipes	Lesser Yellowlegs	Scolopacidae	Y	Freshwater	Predator
Tringa melanoleuca	Greater Yellowlegs	Scolopacidae	Y	Freshwater	Predator
Tringa ochropus	Green Sandpiper	Scolopacidae	Y	Freshwater	Predator
Tringa semipalmata	Willet	Scolopacidae	Y	Marine/Coastal	Predator
Tringa totanus	Common Redshank	Scolopacidae	Y	Freshwater	Predator
Turdus merula	Common Blackbird	Turdidae	N	Terrestrial	Omnivore
Turdus migratorius	American Robin	Turdidae	N	Terrestrial	Omnivore
Turdus philomelos	Song Thrush	Turdidae	N	Terrestrial	Omnivore
Tyrannus verticalis	Western Kingbird	Tyrannidae	N	Terrestrial	Omnivore
Tyto alba	Western Barn Owl	Tytonidae	N	Terrestrial	Predator
Uria aalge	Common Murre	Alcidae	Y	Marine/Coastal	Predator
Uria lomvia	Thick-billed Murre	Alcidae	Y	Marine/Coastal	Predator
Urile penicillatus	Brandt's Cormorant	Phalacrocoracidae	Y	Marine/Coastal	Predator
Vanellus chilensis	Southern Lapwing	Charadriidae	Y	Terrestrial	Omnivore
Vanellus vanellus	Northern Lapwing	Charadriidae	Y	Freshwater	Omnivore
Xema sabini	Sabine's Gull	Laridae	Y	Marine/Coastal	Predator
Zenaida macroura	Mourning Dove	Columbidae	N	Terrestrial	Plant-based diet

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598 *Table S2: Australian species ecological traits used in our prediction of Australian*
599 *species' susceptibility to HPAI. Species are listed by their binomial name, their common*
600 *name, and their taxonomic family. Traits include whether they congregate or not (Y/N),*
601 *their general habitat, their general diet, and their IUCN redlist status.*

Species binomial name	**Species common name**	**Family**	**Congregator?**	**Habitat Groupings**	**Diet Groupings**	**IUCN status**
Acanthiza apicalis	Inland Thornbill	Acanthizidae	N	Terrestrial	Predator	LC
Acanthiza chrysorrhoa	Yellow-rumped Thornbill	Acanthizidae	N	Terrestrial	Predator	LC
Acanthiza ewingii	Tasmanian Thornbill	Acanthizidae	N	Terrestrial	Predator	LC
Acanthiza inornata	Western Thornbill	Acanthizidae	N	Terrestrial	Predator	LC
Acanthiza iredalei	Slender-billed Thornbill	Acanthizidae	N	Terrestrial	Predator	LC
Acanthiza lineata	Striated Thornbill	Acanthizidae	N	Terrestrial	Predator	LC
Acanthiza nana	Yellow Thornbill	Acanthizidae	N	Terrestrial	Predator	LC
Acanthiza pusilla	Brown Thornbill	Acanthizidae	N	Terrestrial	Predator	LC
Acanthiza reguloides	Buff-rumped Thornbill	Acanthizidae	N	Terrestrial	Predator	LC
Acanthiza robustirostris	Slaty-backed Thornbill	Acanthizidae	N	Terrestrial	Predator	LC
Acanthiza uropygialis	Chestnut-rumped Thornbill	Acanthizidae	N	Terrestrial	Predator	LC
Acanthornis magna	Scrubtit	Acanthizidae	N	Terrestrial	Predator	LC
Aphelocephala leucopsis	Southern Whiteface	Acanthizidae	N	Terrestrial	Predator	VU
Aphelocephala nigricincta	Banded Whiteface	Acanthizidae	N	Terrestrial	Predator	LC
Aphelocephala pectoralis	Chestnut-breasted Whiteface	Acanthizidae	N	Terrestrial	Predator	NT
Calamanthus campestris	Rufous Fieldwren	Acanthizidae	N	Terrestrial	Predator	LC
Calamanthus cautus	Shy Heathwren	Acanthizidae	N	Terrestrial	Predator	LC
Calamanthus fuliginosus	Striated Fieldwren	Acanthizidae	N	Terrestrial	Predator	LC
Calamanthus montanellus	Western Fieldwren	Acanthizidae	N	Terrestrial	Predator	LC

Calamanthus pyrrhopygius	Chestnut-rumped Heathwren	Acanthizidae	N	Terrestrial	Predator	LC
Gerygone chloronota	Green-backed Gerygone	Acanthizidae	N	Terrestrial	Predator	LC
Gerygone fusca	Western Gerygone	Acanthizidae	N	Terrestrial	Predator	LC
Gerygone levigaster	Mangrove Gerygone	Acanthizidae	N	Terrestrial	Predator	LC
Gerygone magnirostris	Large-billed Gerygone	Acanthizidae	N	Terrestrial	Predator	LC
Gerygone mouki	Brown Gerygone	Acanthizidae	N	Terrestrial	Predator	LC
Gerygone olivacea	White-throated Gerygone	Acanthizidae	N	Terrestrial	Predator	LC
Gerygone palpebrosa	Fairy Gerygone	Acanthizidae	N	Terrestrial	Predator	LC
Gerygone tenebrosa	Dusky Gerygone	Acanthizidae	N	Terrestrial	Predator	LC
Origma solitaria	Rockwarbler	Acanthizidae	N	Terrestrial	Predator	LC
Pycnoptilus floccosus	Pilotbird	Acanthizidae	N	Terrestrial	Predator	VU
Pyrrholaemus brunneus	Redthroat	Acanthizidae	N	Terrestrial	Predator	LC
Pyrrholaemus sagittatus	Speckled Warbler	Acanthizidae	N	Terrestrial	Predator	LC
Sericornis citreogularis	Yellow-throated Scrubwren	Acanthizidae	N	Terrestrial	Predator	LC
Sericornis frontalis	White-browed Scrubwren	Acanthizidae	N	Terrestrial	Predator	LC
Sericornis humilis	Tasmanian Scrubwren	Acanthizidae	N	Terrestrial	Predator	LC
Sericornis magnirostra	Large-billed Scrubwren	Acanthizidae	N	Terrestrial	Predator	LC
Smicrornis brevirostris	Weebill	Acanthizidae	N	Terrestrial	Predator	LC
Accipiter cirrocephalus	Collared Sparrowhawk	Accipitridae	N	Terrestrial	Predator	LC
Accipiter fasciatus	Brown Goshawk	Accipitridae	N	Terrestrial	Predator	LC
Accipiter novaehollandiae	Grey Goshawk	Accipitridae	N	Terrestrial	Predator	LC
Aquila audax	Wedge-tailed Eagle	Accipitridae	N	Terrestrial	Predator	LC
Aviceda subcristata	Pacific Baza	Accipitridae	N	Terrestrial	Predator	LC

Circus approximans	Swamp Harrier	Accipitridae	N	Freshwater	Predator	LC
Circus assimilis	Spotted Harrier	Accipitridae	N	Terrestrial	Predator	LC
Elanus axillaris	Black-shouldered Kite	Accipitridae	N	Terrestrial	Predator	LC
Elanus scriptus	Letter-winged Kite	Accipitridae	N	Terrestrial	Predator	NT
Erythrotriorchis radiatus	Red Goshawk	Accipitridae	N	Terrestrial	Predator	EN
Haliaeetus leucogaster	White-bellied Sea-Eagle	Accipitridae	N	Marine/Coastal	Predator	LC
Haliastur indus	Brahminy Kite	Accipitridae	N	Marine/Coastal	Predator	LC
Haliastur sphenurus	Whistling Kite	Accipitridae	N	Freshwater	Predator	LC
Hamirostra melanosternon	Black-breasted Buzzard	Accipitridae	N	Terrestrial	Predator	LC
Hieraaetus morphnoides	Little Eagle	Accipitridae	N	Terrestrial	Predator	LC
Lophoictinia isura	Square-tailed Kite	Accipitridae	N	Terrestrial	Predator	LC
Milvus migrans	Black Kite	Accipitridae	Y	Terrestrial	Predator	LC
Acrocephalus australis	Australian Reed-Warbler	Acrocephalidae	N	Freshwater	Predator	LC
Aegotheles cristatus	Australian Owlet-nightjar	Aegothelidae	N	Terrestrial	Predator	LC
Alauda arvensis	Eurasian Skylark	Alaudidae	N	Terrestrial	Omnivore	LC
Mirafra javanica	Horsfield's Bushlark	Alaudidae	N	Terrestrial	Omnivore	LC
Ceyx azureus	Azure Kingfisher	Alcedinidae	N	Freshwater	Predator	LC
Ceyx pusillus	Little Kingfisher	Alcedinidae	N	Terrestrial	Predator	LC
Dacelo leachii	Blue-winged Kookaburra	Alcedinidae	N	Terrestrial	Predator	LC
Dacelo novaeguineae	Laughing Kookaburra	Alcedinidae	N	Terrestrial	Predator	LC
Tanysiptera sylvia	Buff-breasted Paradise-Kingfisher	Alcedinidae	N	Terrestrial	Predator	LC
Todiramphus chloris	Collared Kingfisher	Alcedinidae	N	Terrestrial	Predator	LC
Todiramphus macleayii	Forest Kingfisher	Alcedinidae	N	Marine/Coastal	Predator	LC
Todiramphus pyrrhopygius	Red-backed Kingfisher	Alcedinidae	N	Terrestrial	Predator	LC

Todiramphus sanctus	Sacred Kingfisher	Alcedinidae	N	Terrestrial	Predator	LC
Anas castanea	Chestnut Teal	Anatidae	Y	Freshwater	Omnivore	LC
Anas gracilis	Grey Teal	Anatidae	Y	Freshwater	Omnivore	LC
Anas superciliosa	Pacific Black Duck	Anatidae	Y	Freshwater	Omnivore	LC
Aythya australis	Hardhead	Anatidae	Y	Freshwater	Omnivore	LC
Biziura lobata	Musk Duck	Anatidae	Y	Freshwater	Predator	LC
Cereopsis novaehollandiae	Cape Barren Goose	Anatidae	Y	Terrestrial	Plant-based diet	LC
Chenonetta jubata	Australian Wood Duck	Anatidae	Y	Freshwater	Plant-based diet	LC
Cygnus atratus	Black Swan	Anatidae	Y	Freshwater	Plant-based diet	LC
Dendrocygna arcuata	Wandering Whistling-Duck	Anatidae	Y	Freshwater	Plant-based diet	LC
Dendrocygna eytoni	Plumed Whistling-Duck	Anatidae	Y	Terrestrial	Plant-based diet	LC
Dendrocygna guttata	Spotted Whistling-Duck	Anatidae	Y	Freshwater	Omnivore	LC
Malacorhynchus membranaceus	Pink-eared Duck	Anatidae	Y	Freshwater	Omnivore	LC
Nettapus coromandelianus	Cotton Pygmy-goose	Anatidae	Y	Freshwater	Plant-based diet	LC
Nettapus pulchellus	Green Pygmy-goose	Anatidae	Y	Freshwater	Plant-based diet	LC
Oxyura australis	Blue-billed Duck	Anatidae	Y	Freshwater	Omnivore	LC
Radjah radjah	Radjah Shelduck	Anatidae	Y	Marine/Coastal	Omnivore	LC
Spatula rhynchotis	Australasian Shoveler	Anatidae	Y	Freshwater	Omnivore	LC
Stictonetta naevosa	Freckled Duck	Anatidae	Y	Freshwater	Omnivore	LC
Tadorna tadornoides	Australian Shelduck	Anatidae	Y	Freshwater	Omnivore	LC
Anhinga novaehollandiae	Australasian Darter	Anhingidae	Y	Freshwater	Predator	LC
Anseranas semipalmata	Magpie Goose	Anseranatidae	Y	Freshwater	Plant-based diet	LC
Aerodramus terraereginae	Australian Swiftlet	Apodidae	Y	Terrestrial	Predator	LC
Apus pacificus	Fork-tailed Swift	Apodidae	Y	Terrestrial	Predator	LC
Hirundapus caudacutus	White-throated Needletail	Apodidae	Y	Terrestrial	Predator	LC

Ardea alba	Great Egret	Ardeidae	Y	Freshwater	Predator	LC
Ardea intermedia	Intermediate Egret	Ardeidae	Y	Freshwater	Predator	LC
Ardea pacifica	White-necked Heron	Ardeidae	Y	Freshwater	Predator	LC
Ardea sumatrana	Great-billed Heron	Ardeidae	N	Marine/Coastal	Predator	LC
Botaurus poiciloptilus	Australasian Bittern	Ardeidae	N	Freshwater	Predator	VU
Bubulcus ibis	Cattle Egret	Ardeidae	Y	Terrestrial	Predator	LC
Butorides striata	Striated Heron	Ardeidae	Y	Freshwater	Predator	LC
Egretta garzetta	Little Egret	Ardeidae	Y	Freshwater	Predator	LC
Egretta novaehollandiae	White-faced Heron	Ardeidae	Y	Freshwater	Predator	LC
Egretta picata	Pied Heron	Ardeidae	Y	Marine/Coastal	Predator	LC
Egretta sacra	Eastern Reef Egret	Ardeidae	Y	Marine/Coastal	Predator	LC
Ixobrychus dubius	Australian Little Bittern	Ardeidae	N	Freshwater	Predator	LC
Ixobrychus flavicollis	Black Bittern	Ardeidae	N	Freshwater	Predator	LC
Nycticorax caledonicus	Nankeen Night-Heron	Ardeidae	Y	Freshwater	Predator	LC
Artamus cinereus	Black-faced Woodswallow	Artamidae	N	Terrestrial	Predator	LC
Artamus cyanopterus	Dusky Woodswallow	Artamidae	N	Terrestrial	Predator	LC
Artamus minor	Little Woodswallow	Artamidae	N	Terrestrial	Predator	LC
Artamus personatus	Masked Woodswallow	Artamidae	Y	Terrestrial	Predator	LC
Artamus superciliosus	White-browed Woodswallow	Artamidae	Y	Terrestrial	Predator	LC
Cracticus argenteus	Silver-backed Butcherbird	Artamidae	N	Terrestrial	Omnivore	LC
Cracticus mentalis	Black-backed Butcherbird	Artamidae	N	Terrestrial	Predator	LC
Cracticus nigrogularis	Pied Butcherbird	Artamidae	N	Terrestrial	Omnivore	LC
Cracticus torquatus	Grey Butcherbird	Artamidae	N	Terrestrial	Omnivore	LC
Gymnorhina tibicen	Australian Magpie	Artamidae	N	Terrestrial	Predator	LC
Melloria quoyi	Black Butcherbird	Artamidae	N	Terrestrial	Omnivore	LC
Strepera fuliginosa	Black Currawong	Artamidae	N	Terrestrial	Omnivore	LC
Strepera graculina	Pied Currawong	Artamidae	N	Terrestrial	Omnivore	LC

Strepera versicolor	Grey Currawong	Artamidae	N	Terrestrial	Omnivore	LC
Artamus leucorynchus	White-breasted Woodswallow	Artamidae	Y	Terrestrial	Predator	LC
Burhinus grallarius	Bush Stone-curlew	Burhinidae	N	Terrestrial	Predator	LC
Esacus magnirostris	Beach Stone-curlew	Burhinidae	N	Marine/Coastal	Predator	NT
Cacatua galerita	Sulphur-crested Cockatoo	Cacatuidae	Y	Terrestrial	Omnivore	LC
Cacatua leadbeateri	Major Mitchell's Cockatoo	Cacatuidae	N	Terrestrial	Plant-based diet	LC
Cacatua pastinator	Western Corella	Cacatuidae	Y	Terrestrial	Plant-based diet	LC
Cacatua sanguinea	Little Corella	Cacatuidae	Y	Terrestrial	Plant-based diet	LC
Cacatua tenuirostris	Long-billed Corella	Cacatuidae	Y	Terrestrial	Plant-based diet	LC
Callocephalon fimbriatum	Gang-gang Cockatoo	Cacatuidae	N	Terrestrial	Omnivore	VU
Calyptorhynchus banksii	Red-tailed Black-Cockatoo	Cacatuidae	Y	Terrestrial	Plant-based diet	LC
Calyptorhynchus lathami	Glossy Black-Cockatoo	Cacatuidae	N	Terrestrial	Plant-based diet	VU
Eolophus roseicapilla	Galah	Cacatuidae	Y	Terrestrial	Omnivore	LC
Nymphicus hollandicus	Cockatiel	Cacatuidae	Y	Terrestrial	Plant-based diet	LC
Zanda baudinii	Baudin's Black-Cockatoo	Cacatuidae	Y	Terrestrial	Omnivore	CR
Zanda funerea	Yellow-tailed Black-Cockatoo	Cacatuidae	Y	Terrestrial	Omnivore	LC
Zanda latirostris	Carnaby's Black-Cockatoo	Cacatuidae	Y	Terrestrial	Plant-based diet	EN
Coracina lineata	Barred Cuckoo-shrike	Campephagidae	N	Terrestrial	Omnivore	LC
Coracina maxima	Ground Cuckoo-shrike	Campephagidae	N	Terrestrial	Predator	LC
Coracina novaehollandiae	Black-faced Cuckoo-shrike	Campephagidae	N	Terrestrial	Predator	LC

Coracina papuensis	White-bellied Cuckoo-shrike	Campephagidae	N	Terrestrial	Predator	LC
Edolisoma tenuirostre	Common Cicadabird	Campephagidae	N	Terrestrial	Predator	LC
Lalage leucomela	Varied Triller	Campephagidae	N	Terrestrial	Predator	LC
Lalage tricolor	White-winged Triller	Campephagidae	N	Terrestrial	Predator	LC
Caprimulgus macrurus	Large-tailed Nightjar	Caprimulgidae	N	Terrestrial	Predator	LC
Casuarius casuarius	Southern Cassowary	Casuariidae	N	Terrestrial	Omnivore	LC
Dromaius novaehollandiae	Emu	Casuariidae	N	Terrestrial	Omnivore	LC
Charadrius bicinctus	Double-banded Plover	Charadriidae	Y	Freshwater	Predator	NT
Charadrius leschenaultii	Greater Sand Plover	Charadriidae	Y	Marine/Coastal	Predator	LC
Charadrius mongolus	Lesser Sand Plover	Charadriidae	Y	Freshwater	Predator	EN
Charadrius ruficapillus	Red-capped Plover	Charadriidae	Y	Marine/Coastal	Predator	LC
Charadrius veredus	Oriental Plover	Charadriidae	Y	Freshwater	Predator	LC
Elseyornis melanops	Black-fronted Dotterel	Charadriidae	N	Freshwater	Predator	LC
Erythrogonys cinctus	Red-kneed Dotterel	Charadriidae	Y	Freshwater	Predator	LC
Peltohyas australis	Inland Dotterel	Charadriidae	N	Terrestrial	Predator	LC
Pluvialis fulva	Pacific Golden Plover	Charadriidae	Y	Terrestrial	Predator	LC
Pluvialis squatarola	Grey Plover	Charadriidae	Y	Terrestrial	Predator	VU
Thinornis cucullatus	Hooded Plover	Charadriidae	N	Marine/Coastal	Predator	VU
Vanellus miles	Masked Lapwing	Charadriidae	Y	Terrestrial	Predator	LC
Vanellus tricolor	Banded Lapwing	Charadriidae	N	Terrestrial	Omnivore	LC
Ephippiorhynchus asiaticus	Black-necked Stork	Ciconiidae	Y	Freshwater	Predator	NT
Cinclosoma alisteri	Nullarbor Quail-thrush	Cinclosomatidae	N	Terrestrial	Omnivore	LC
Cinclosoma castaneothorax	Chestnut-breasted Quail-thrush	Cinclosomatidae	N	Terrestrial	Omnivore	LC
Cinclosoma castanotum	Chestnut Quail-thrush	Cinclosomatidae	N	Terrestrial	Omnivore	LC

Cinclosoma cinnamomeum	Cinnamon Quail-thrush	Cinclosomatidae	N	Terrestrial	Omnivore	LC
Cinclosoma marginatum	Western Quail-thrush	Cinclosomatidae	N	Terrestrial	Omnivore	LC
Cinclosoma punctatum	Spotted Quail-thrush	Cinclosomatidae	N	Terrestrial	Predator	LC
Cisticola exilis	Golden-headed Cisticola	Cisticolidae	N	Terrestrial	Predator	LC
Cisticola juncidis	Zitting Cisticola	Cisticolidae	N	Terrestrial	Predator	LC
Climacteris affinis	White-browed Treecreeper	Climacteridae	N	Terrestrial	Predator	LC
Climacteris erythrops	Red-browed Treecreeper	Climacteridae	N	Terrestrial	Predator	LC
Climacteris melanurus	Black-tailed Treecreeper	Climacteridae	N	Terrestrial	Predator	LC
Climacteris picumnus	Brown Treecreeper	Climacteridae	N	Terrestrial	Predator	LC
Climacteris rufus	Rufous Treecreeper	Climacteridae	N	Terrestrial	Predator	LC
Cormobates leucophaea	White-throated Treecreeper	Climacteridae	N	Terrestrial	Predator	LC
Chalcophaps longirostris	Brown-capped Emerald-Dove	Columbidae	N	Terrestrial	Omnivore	LC
Columba leucomela	White-headed Pigeon	Columbidae	N	Terrestrial	Omnivore	LC
Columba livia	Rock Dove	Columbidae	Y	Terrestrial	Plant-based diet	LC
Ducula spilorrhoa	Torresian Imperial-Pigeon	Columbidae	Y	Terrestrial	Omnivore	LC
Ducula whartoni	Christmas Island Imperial-Pigeon	Columbidae	Y	Terrestrial	Omnivore	LC
Geopelia cuneata	Diamond Dove	Columbidae	N	Terrestrial	Plant-based diet	LC
Geopelia humeralis	Bar-shouldered Dove	Columbidae	N	Terrestrial	Plant-based diet	LC
Geopelia placida	Peaceful Dove	Columbidae	N	Terrestrial	Plant-based diet	LC
Geophaps plumifera	Spinifex Pigeon	Columbidae	N	Terrestrial	Plant-based diet	LC
Geophaps scripta	Squatter Pigeon	Columbidae	N	Terrestrial	Plant-based diet	LC

Geophaps smithii	Partridge Pigeon	Columbidae	N	Terrestrial	Plant-based diet	LC
Leucosarcia melanoleuca	Wonga Pigeon	Columbidae	N	Terrestrial	Omnivore	LC
Lopholaimus antarcticus	Topknot Pigeon	Columbidae	N	Terrestrial	Omnivore	LC
Macropygia phasianella	Brown Cuckoo-Dove	Columbidae	N	Terrestrial	Plant-based diet	LC
Megaloprepia magnifica	Wompoo Fruit-Dove	Columbidae	N	Terrestrial	Omnivore	LC
Ocyphaps lophotes	Crested Pigeon	Columbidae	Y	Terrestrial	Omnivore	LC
Petrophassa albipennis	White-quilled Rock-Pigeon	Columbidae	N	Terrestrial	Plant-based diet	LC
Phaps chalcoptera	Common Bronzewing	Columbidae	N	Terrestrial	Plant-based diet	LC
Phaps elegans	Brush Bronzewing	Columbidae	N	Terrestrial	Plant-based diet	LC
Phaps histrionica	Flock Bronzewing	Columbidae	Y	Terrestrial	Plant-based diet	LC
Ptilinopus regina	Rose-crowned Fruit-Dove	Columbidae	N	Terrestrial	Omnivore	LC
Ptilinopus superbus	Superb Fruit-Dove	Columbidae	N	Terrestrial	Omnivore	LC
Spilopelia chinensis	Spotted Dove	Columbidae	N	Terrestrial	Plant-based diet	LC
Spilopelia senegalensis	Laughing Dove	Columbidae	N	Terrestrial	Plant-based diet	LC
Eurystomus orientalis	Oriental Dollarbird	Coraciidae	N	Terrestrial	Predator	LC
Corvus bennetti	Little Crow	Corvidae	Y	Terrestrial	Omnivore	LC
Corvus coronoides	Australian Raven	Corvidae	N	Terrestrial	Omnivore	LC
Corvus mellori	Little Raven	Corvidae	N	Terrestrial	Omnivore	LC
Corvus orru	Torresian Crow	Corvidae	Y	Terrestrial	Omnivore	LC
Corvus tasmanicus	Forest Raven	Corvidae	N	Terrestrial	Omnivore	LC
Cacomantis castaneiventris	Chestnut-breasted Cuckoo	Cuculidae	N	Terrestrial	Predator	LC
Cacomantis flabelliformis	Fan-tailed Cuckoo	Cuculidae	N	Terrestrial	Predator	LC
Cacomantis variolosus	Brush Cuckoo	Cuculidae	N	Terrestrial	Predator	LC
Centropus phasianinus	Pheasant Coucal	Cuculidae	N	Terrestrial	Predator	LC

Chalcites basalis	Horsfield's Bronze-Cuckoo	Cuculidae	N	Terrestrial	Predator	LC
Chalcites lucidus	Shining Bronze-Cuckoo	Cuculidae	N	Terrestrial	Predator	LC
Chalcites minutillus	Little Bronze-Cuckoo	Cuculidae	N	Terrestrial	Predator	LC
Chalcites osculans	Black-eared Cuckoo	Cuculidae	N	Terrestrial	Predator	LC
Eudynamys orientalis	Eastern Koel	Cuculidae	N	Terrestrial	Omnivore	LC
Heteroscenes pallidus	Pallid Cuckoo	Cuculidae	N	Terrestrial	Predator	LC
Scythrops novaehollandiae	Channel-billed Cuckoo	Cuculidae	N	Terrestrial	Omnivore	LC
Cuculus optatus	Oriental Cuckoo	Cuculidae	N	Terrestrial	Predator	LC
Dicaeum hirundinaceum	Mistletoebird	Dicaeidae	N	Terrestrial	Omnivore	LC
Dicrurus bracteatus	Spangled Drongo	Dicruridae	N	Terrestrial	Omnivore	LC
Diomedea antipodensis	Antipodean Albatross	Diomedeidae	Y	Marine/Coastal	Predator	EN
Diomedea exulans	Wandering Albatross	Diomedeidae	Y	Marine/Coastal	Predator	VU
Thalassarche bulleri	Buller's Albatross	Diomedeidae	Y	Marine/Coastal	Predator	NT
Thalassarche carteri	Indian Yellow-nosed Albatross	Diomedeidae	Y	Marine/Coastal	Predator	EN
Thalassarche cauta	Shy Albatross	Diomedeidae	Y	Marine/Coastal	Predator	NT
Thalassarche melanophris	Black-browed Albatross	Diomedeidae	Y	Marine/Coastal	Predator	LC
Chloebia gouldiae	Gouldian Finch	Estrildidae	Y	Terrestrial	Plant-based diet	LC
Emblema pictum	Painted Finch	Estrildidae	N	Terrestrial	Plant-based diet	LC
Heteromunia pectoralis	Pictorella Mannikin	Estrildidae	N	Terrestrial	Plant-based diet	LC
Lonchura castaneothorax	Chestnut-breasted Mannikin	Estrildidae	N	Terrestrial	Plant-based diet	LC
Lonchura flaviprymna	Yellow-rumped Mannikin	Estrildidae	Y	Terrestrial	Plant-based diet	LC
Lonchura punctulata	Nutmeg Mannikin	Estrildidae	Y	Terrestrial	Plant-based diet	LC
Neochmia modesta	Plum-headed Finch	Estrildidae	Y	Terrestrial	Plant-based diet	LC

Neochmia phaeton	Black-bellied Crimson Finch	Estrildidae	N	Terrestrial	Plant-based diet	LC
Neochmia ruficauda	Star Finch	Estrildidae	Y	Freshwater	Omnivore	LC
Neochmia temporalis	Red-browed Finch	Estrildidae	Y	Terrestrial	Plant-based diet	LC
Poephila acuticauda	Long-tailed Finch	Estrildidae	Y	Terrestrial	Plant-based diet	LC
Poephila cincta	Black-throated Finch	Estrildidae	N	Terrestrial	Plant-based diet	LC
Poephila personata	Masked Finch	Estrildidae	Y	Terrestrial	Omnivore	LC
Stagonopleura bella	Beautiful Firetail	Estrildidae	N	Terrestrial	Omnivore	LC
Stagonopleura guttata	Diamond Firetail	Estrildidae	Y	Terrestrial	Plant-based diet	VU
Stagonopleura oculata	Red-eared Firetail	Estrildidae	N	Terrestrial	Omnivore	LC
Taeniopygia bichenovii	Double-barred Finch	Estrildidae	N	Terrestrial	Plant-based diet	LC
Taeniopygia castanotis	Zebra Finch	Estrildidae	Y	Terrestrial	Plant-based diet	LC
Falco berigora	Brown Falcon	Falconidae	N	Terrestrial	Predator	LC
Falco cenchroides	Nankeen Kestrel	Falconidae	N	Terrestrial	Predator	LC
Falco hypoleucos	Grey Falcon	Falconidae	N	Terrestrial	Predator	VU
Falco longipennis	Australian Hobby	Falconidae	N	Terrestrial	Predator	LC
Falco peregrinus	Peregrine Falcon	Falconidae	N	Terrestrial	Predator	LC
Falco subniger	Black Falcon	Falconidae	N	Terrestrial	Predator	LC
Fregata andrewsi	Christmas Island Frigatebird	Fregatidae	Y	Marine/Coastal	Predator	VU
Fregata ariel	Lesser Frigatebird	Fregatidae	Y	Marine/Coastal	Predator	LC
Fregata minor	Great Frigatebird	Fregatidae	Y	Marine/Coastal	Predator	LC
Carduelis carduelis	European Goldfinch	Fringillidae	N	Terrestrial	Plant-based diet	LC
Chloris chloris	Common Greenfinch	Fringillidae	N	Terrestrial	Plant-based diet	LC
Glareola maldivarum	Oriental Pratincole	Glareolidae	Y	Terrestrial	Predator	LC
Stiltia isabella	Australian Pratincole	Glareolidae	Y	Terrestrial	Predator	LC
Grus antigone	Sarus Crane	Gruidae	N	Terrestrial	Omnivore	VU
Grus rubicunda	Brolga	Gruidae	N	Terrestrial	Omnivore	LC

Haematopus fuliginosus	Sooty Oystercatcher	Haematopodidae	Y	Marine/Coastal	Predator	LC
Haematopus longirostris	Australian Pied Oystercatcher	Haematopodidae	Y	Marine/Coastal	Predator	LC
Cheramoeca leucosterna	White-backed Swallow	Hirundinidae	N	Terrestrial	Predator	LC
Hirundo neoxena	Welcome Swallow	Hirundinidae	Y	Freshwater	Predator	LC
Petrochelidon ariel	Fairy Martin	Hirundinidae	Y	Freshwater	Predator	LC
Petrochelidon nigricans	Tree Martin	Hirundinidae	Y	Terrestrial	Predator	LC
Irediparra gallinacea	Comb-crested Jacana	Jacanidae	Y	Freshwater	Predator	LC
Anous minutus	Black Noddy	Laridae	Y	Marine/Coastal	Predator	LC
Anous stolidus	Brown Noddy	Laridae	Y	Marine/Coastal	Predator	LC
Chlidonias hybrida	Whiskered Tern	Laridae	Y	Freshwater	Predator	LC
Chlidonias leucopterus	White-winged Black Tern	Laridae	Y	Freshwater	Predator	LC
Gelochelidon macrotarsa	Australian Gull-billed Tern	Laridae	Y	Marine/Coastal	Predator	LC
Gelochelidon nilotica	Common Gull-billed Tern	Laridae	Y	Marine/Coastal	Predator	LC
Hydroprogne caspia	Caspian Tern	Laridae	Y	Freshwater	Predator	LC
Larus dominicanus	Kelp Gull	Laridae	Y	Marine/Coastal	Predator	LC
Larus novaehollandiae	Silver Gull	Laridae	Y	Marine/Coastal	Omnivore	LC
Larus pacificus	Pacific Gull	Laridae	Y	Marine/Coastal	Predator	LC
Onychoprion anaethetus	Bridled Tern	Laridae	Y	Marine/Coastal	Predator	LC
Onychoprion fuscatus	Sooty Tern	Laridae	Y	Marine/Coastal	Predator	LC
Sterna dougallii	Roseate Tern	Laridae	Y	Marine/Coastal	Predator	LC
Sterna hirundo	Common Tern	Laridae	Y	Marine/Coastal	Predator	LC
Sterna sumatrana	Black-naped Tern	Laridae	Y	Marine/Coastal	Predator	LC
Sternula albifrons	Little Tern	Laridae	Y	Marine/Coastal	Predator	LC
Sternula nereis	Fairy Tern	Laridae	Y	Marine/Coastal	Predator	VU
Thalasseus bengalensis	Lesser Crested Tern	Laridae	Y	Marine/Coastal	Predator	LC
Thalasseus bergii	Greater Crested Tern	Laridae	Y	Marine/Coastal	Predator	LC

Cincloramphus cruralis	Brown Songlark	Locustellidae	N	Terrestrial	Predator	LC
Cincloramphus mathewsi	Rufous Songlark	Locustellidae	N	Terrestrial	Predator	LC
Cincloramphus timoriensis	Tawny Grassbird	Locustellidae	N	Freshwater	Predator	LC
Poodytes carteri	Spinifexbird	Locustellidae	N	Terrestrial	Omnivore	LC
Poodytes gramineus	Little Grassbird	Locustellidae	N	Freshwater	Predator	LC
Amytornis ballarae	Kalkadoon Grasswren	Maluridae	N	Terrestrial	Omnivore	VU
Amytornis barbatus	Grey Grasswren	Maluridae	N	Terrestrial	Omnivore	LC
Amytornis dorotheae	Carpentarian Grasswren	Maluridae	N	Terrestrial	Omnivore	VU
Amytornis goyderi	Eyrean Grasswren	Maluridae	N	Terrestrial	Plant-based diet	LC
Amytornis merrotsyi	Short-tailed Grasswren	Maluridae	N	Terrestrial	Omnivore	NT
Amytornis modestus	Thick-billed Grasswren	Maluridae	N	Terrestrial	Omnivore	LC
Amytornis purnelli	Dusky Grasswren	Maluridae	N	Terrestrial	Omnivore	LC
Amytornis striatus	Striated Grasswren	Maluridae	N	Terrestrial	Omnivore	LC
Amytornis textilis	Western Grasswren	Maluridae	N	Terrestrial	Omnivore	LC
Amytornis woodwardi	White-throated Grasswren	Maluridae	N	Terrestrial	Omnivore	EN
Malurus amabilis	Lovely Fairy-wren	Maluridae	N	Terrestrial	Predator	LC
Malurus coronatus	Purple-crowned Fairy-wren	Maluridae	N	Freshwater	Predator	LC
Malurus cyaneus	Superb Fairy-wren	Maluridae	N	Terrestrial	Predator	LC
Malurus elegans	Red-winged Fairy-wren	Maluridae	N	Terrestrial	Predator	LC
Malurus lamberti	Variegated Fairy-wren	Maluridae	N	Terrestrial	Predator	LC
Malurus leucopterus	White-winged Fairy-wren	Maluridae	N	Terrestrial	Predator	LC
Malurus melanocephalus	Red-backed Fairy-wren	Maluridae	N	Terrestrial	Predator	LC
Malurus pulcherrimus	Blue-breasted Fairy-wren	Maluridae	N	Terrestrial	Predator	LC
Malurus splendens	Splendid Fairy-wren	Maluridae	N	Terrestrial	Predator	LC

Stipiturus malachurus	Southern Emu-wren	Maluridae	N	Terrestrial	Predator	LC
Stipiturus mallee	Mallee Emu-wren	Maluridae	N	Terrestrial	Predator	EN
Stipiturus ruficeps	Rufous-crowned Emu-wren	Maluridae	N	Terrestrial	Predator	LC
Alectura lathami	Australian Brush-turkey	Megapodidae	N	Terrestrial	Omnivore	LC
Leipoa ocellata	Malleefowl	Megapodidae	N	Terrestrial	Omnivore	VU
Megapodius reinwardt	Orange-footed Scrubfowl	Megapodidae	N	Terrestrial	Omnivore	LC
Acanthagenys rufogularis	Spiny-cheeked Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Acanthorhynchus superciliosus	Western Spinebill	Meliphagidae	N	Terrestrial	Omnivore	LC
Acanthorhynchus tenuirostris	Eastern Spinebill	Meliphagidae	N	Terrestrial	Omnivore	LC
Anthochaera carunculata	Red Wattlebird	Meliphagidae	N	Terrestrial	Omnivore	LC
Anthochaera chrysoptera	Little Wattlebird	Meliphagidae	N	Terrestrial	Omnivore	LC
Anthochaera lunulata	Western Wattlebird	Meliphagidae	N	Terrestrial	Omnivore	LC
Anthochaera paradoxa	Yellow Wattlebird	Meliphagidae	N	Terrestrial	Omnivore	LC
Anthochaera phrygia	Regent Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	CR
Ashbyia lovensis	Gibberbird	Meliphagidae	N	Terrestrial	Predator	LC
Caligavis chrysops	Yellow-faced Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Certhionyx variegatus	Pied Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Cissomela pectoralis	Banded Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Conopophila albogularis	Rufous-banded Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Conopophila rufogularis	Rufous-throated Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Conopophila whitei	Grey Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Entomyzon cyanotis	Blue-faced Honeyeater	Meliphagidae	Y	Terrestrial	Omnivore	LC
Epthianura albifrons	White-fronted Chat	Meliphagidae	N	Freshwater	Predator	LC

Epthianura aurifrons	Orange Chat	Meliphagidae	N	Terrestrial	Predator	LC
Epthianura crocea	Yellow Chat	Meliphagidae	N	Freshwater	Predator	LC
Epthianura tricolor	Crimson Chat	Meliphagidae	N	Terrestrial	Predator	LC
Gavicalis fasciogularis	Mangrove Honeyeater	Meliphagidae	N	Marine/Coastal	Omnivore	LC
Gavicalis versicolor	Varied Honeyeater	Meliphagidae	N	Marine/Coastal	Omnivore	LC
Gavicalis virescens	Singing Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Gliciphila melanops	Tawny-crowned Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Grantiella picta	Painted Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Lichenostomus cratitius	Purple-gaped Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Lichenostomus melanops	Yellow-tufted Honeyeater	Meliphagidae	Y	Terrestrial	Omnivore	LC
Lichmera indistincta	Brown Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Manorina flavigula	Yellow-throated Miner	Meliphagidae	Y	Terrestrial	Omnivore	LC
Manorina melanocephala	Noisy Miner	Meliphagidae	Y	Terrestrial	Omnivore	LC
Manorina melanophrys	Bell Miner	Meliphagidae	Y	Terrestrial	Omnivore	LC
Meliphaga lewinii	Lewin's Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Meliphaga notata	Yellow-spotted Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Melithreptus affinis	Black-headed Honeyeater	Meliphagidae	N	Terrestrial	Predator	LC
Melithreptus albogularis	White-throated Honeyeater	Meliphagidae	N	Terrestrial	Predator	LC
Melithreptus brevirostris	Brown-headed Honeyeater	Meliphagidae	Y	Terrestrial	Omnivore	LC
Melithreptus chloropsis	Gilbert's Honeyeater	Meliphagidae	Y	Terrestrial	Omnivore	LC
Melithreptus gularis	Black-chinned Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Melithreptus lunatus	White-naped Honeyeater	Meliphagidae	Y	Terrestrial	Omnivore	LC

Melithreptus validirostris	Strong-billed Honeyeater	Meliphagidae	Y	Terrestrial	Omnivore	VU
Microptilotis gracilis	Graceful Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Myzomela erythrocephala	Red-headed Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Myzomela obscura	Dusky Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Myzomela sanguinolenta	Scarlet Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Nesoptilotis flavicollis	Yellow-throated Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Nesoptilotis leucotis	White-eared Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Philemon argenticeps	Silver-crowned Friarbird	Meliphagidae	N	Terrestrial	Omnivore	LC
Philemon buceroides	Helmeted Friarbird	Meliphagidae	N	Terrestrial	Omnivore	LC
Philemon citreogularis	Little Friarbird	Meliphagidae	N	Terrestrial	Omnivore	LC
Philemon corniculatus	Noisy Friarbird	Meliphagidae	N	Terrestrial	Omnivore	LC
Phylidonyris niger	White-cheeked Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Phylidonyris novaehollandiae	New Holland Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Phylidonyris pyrrhopterus	Crescent Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Plectorhyncha lanceolata	Striped Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Ptilotula flavescens	Yellow-tinted Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Ptilotula fusca	Fuscous Honeyeater	Meliphagidae	Y	Terrestrial	Omnivore	LC
Ptilotula keartlandi	Grey-headed Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Ptilotula ornata	Yellow-plumed Honeyeater	Meliphagidae	Y	Terrestrial	Omnivore	LC
Ptilotula penicillata	White-plumed Honeyeater	Meliphagidae	Y	Terrestrial	Omnivore	LC
Ptilotula plumula	Grey-fronted Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Purnella albifrons	White-fronted Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Ramsayornis fasciatus	Bar-breasted Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC

Ramsayornis modestus	Brown-backed Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Stomiopera flava	Yellow Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Stomiopera unicolor	White-gaped Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Sugomel nigrum	Black Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Trichodere cockerelli	White-streaked Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Xanthotis macleayanus	Macleay's Honeyeater	Meliphagidae	N	Terrestrial	Omnivore	LC
Menura alberti	Albert's Lyrebird	Menuridae	N	Terrestrial	Omnivore	LC
Menura novaehollandiae	Superb Lyrebird	Menuridae	N	Terrestrial	Omnivore	LC
Carterornis leucotis	White-eared Monarch	Monarchidae	N	Terrestrial	Predator	LC
Grallina cyanoleuca	Magpie-lark	Monarchidae	N	Terrestrial	Predator	LC
Monarcha frater	Black-winged Monarch	Monarchidae	N	Terrestrial	Predator	LC
Monarcha melanopsis	Black-faced Monarch	Monarchidae	N	Terrestrial	Predator	LC
Myiagra alecto	Shining Flycatcher	Monarchidae	N	Freshwater	Predator	LC
Myiagra cyanoleuca	Satin Flycatcher	Monarchidae	N	Terrestrial	Predator	LC
Myiagra inquieta	Restless Flycatcher	Monarchidae	N	Terrestrial	Predator	LC
Myiagra nana	Paperbark Flycatcher	Monarchidae	N	Terrestrial	Predator	LC
Myiagra rubecula	Leaden Flycatcher	Monarchidae	N	Terrestrial	Predator	LC
Myiagra ruficollis	Broad-billed Flycatcher	Monarchidae	N	Terrestrial	Predator	LC
Symposiachrus trivirgatus	Spectacled Monarch	Monarchidae	N	Terrestrial	Predator	LC
Anthus novaeseelandiae	Australasian Pipit	Motacillidae	N	Terrestrial	Omnivore	LC
Motacilla tschutschensis	Eastern Yellow Wagtail	Motacillidae	Y	Terrestrial	Omnivore	LC
Cinnyris jugularis	Olive-backed Sunbird	Nectariniidae	N	Terrestrial	Omnivore	LC
Daphoenositta chrysoptera	Varied Sittella	Neosittidae	Y	Terrestrial	Predator	LC
Numida meleagris	Helmeted Guineafowl	Numididae	N	Terrestrial	Omnivore	LC

Garrodia nereis	Grey-backed Storm-Petrel	Oceanitidae	Y	Marine/Coastal	Predator	LC
Oceanites oceanicus	Wilson's Storm-Petrel	Oceanitidae	Y	Marine/Coastal	Predator	LC
Pelagodroma marina	White-faced Storm-Petrel	Oceanitidae	Y	Marine/Coastal	Predator	LC
Oriolus flavocinctus	Green Oriole	Oriolidae	N	Terrestrial	Omnivore	LC
Oriolus sagittatus	Olive-backed Oriole	Oriolidae	N	Terrestrial	Omnivore	LC
Sphecotheres vieilloti	Australasian Figbird	Oriolidae	Y	Terrestrial	Omnivore	LC
Orthonyx spaldingii	Chowchilla	Orthonychidae	N	Terrestrial	Predator	LC
Orthonyx temminckii	Australian Logrunner	Orthonychidae	N	Terrestrial	Predator	LC
Ardeotis australis	Australian Bustard	Otididae	N	Terrestrial	Omnivore	LC
Falcunculus frontatus	Eastern Shrike-tit	Pachycephalidae	N	Terrestrial	Predator	LC
Falcunculus leucogaster	Western Shrike-tit	Pachycephalidae	N	Terrestrial	Predator	LC
Falcunculus whitei	Northern Shrike-tit	Pachycephalidae	N	Terrestrial	Predator	LC
Colluricincla boweri	Bower's Shrike-thrush	Pachycephalidae	N	Terrestrial	Predator	VU
Colluricincla harmonica	Grey Shrike-thrush	Pachycephalidae	N	Terrestrial	Predator	LC
Colluricincla megarhyncha	Little Shrike-thrush	Pachycephalidae	N	Terrestrial	Predator	LC
Colluricincla woodwardi	Sandstone Shrike-thrush	Pachycephalidae	N	Terrestrial	Predator	LC
Pachycephala inornata	Gilbert's Whistler	Pachycephalidae	N	Terrestrial	Predator	LC
Pachycephala lanioides	White-breasted Whistler	Pachycephalidae	N	Terrestrial	Predator	LC
Pachycephala melanura	Mangrove Golden Whistler	Pachycephalidae	N	Terrestrial	Predator	LC
Pachycephala olivacea	Olive Whistler	Pachycephalidae	N	Terrestrial	Predator	LC
Pachycephala pectoralis	Golden Whistler	Pachycephalidae	N	Terrestrial	Predator	LC
Pachycephala rufiventris	Rufous Whistler	Pachycephalidae	N	Terrestrial	Predator	LC
Pachycephala rufogularis	Red-lored Whistler	Pachycephalidae	N	Terrestrial	Predator	VU
Pachycephala simplex	Brown Whistler	Pachycephalidae	N	Terrestrial	Predator	LC

Pandion haliaetus	Osprey	Pandionidae	Y	Marine/Coastal	Predator	LC
Lophorina paradisea	Paradise Riflebird	Paradisaeidae	N	Terrestrial	Omnivore	LC
Lophorina victoriae	Victoria's Riflebird	Paradisaeidae	N	Terrestrial	Omnivore	VU
Pardalotus punctatus	Spotted Pardalote	Pardalotidae	N	Terrestrial	Predator	LC
Pardalotus quadragintus	Forty-spotted Pardalote	Pardalotidae	N	Terrestrial	Predator	EN
Pardalotus rubricatus	Red-browed Pardalote	Pardalotidae	N	Terrestrial	Predator	LC
Pardalotus striatus	Striated Pardalote	Pardalotidae	N	Terrestrial	Predator	LC
Passer domesticus	House Sparrow	Passeridae	Y	Terrestrial	Plant-based diet	LC
Passer montanus	Eurasian Tree Sparrow	Passeridae	Y	Terrestrial	Plant-based diet	LC
Pedionomus torquatus	Plains-wanderer	Pedionomidae	N	Terrestrial	Omnivore	EN
Pelecanus conspicillatus	Australian Pelican	Pelecanidae	Y	Freshwater	Predator	LC
Drymodes brunneopygia	Southern Scrub-robin	Petroicidae	N	Terrestrial	Predator	LC
Drymodes superciliaris	Northern Scrub-robin	Petroicidae	N	Terrestrial	Predator	LC
Eopsaltria australis	Eastern Yellow Robin	Petroicidae	N	Terrestrial	Predator	LC
Eopsaltria griseogularis	Western Yellow Robin	Petroicidae	N	Terrestrial	Predator	LC
Heteromyias cinereifrons	Grey-headed Robin	Petroicidae	N	Terrestrial	Predator	NT
Melanodryas cucullata	Hooded Robin	Petroicidae	N	Terrestrial	Predator	LC
Melanodryas vittata	Dusky Robin	Petroicidae	N	Terrestrial	Predator	VU
Microeca fascinans	Jacky Winter	Petroicidae	N	Terrestrial	Predator	LC
Microeca flavigaster	Lemon-bellied Flycatcher	Petroicidae	N	Terrestrial	Predator	LC
Peneoenanthe pulverulenta	Mangrove Robin	Petroicidae	N	Marine/Coastal	Predator	LC
Petroica boodang	Scarlet Robin	Petroicidae	N	Terrestrial	Predator	LC
Petroica goodenovii	Red-capped Robin	Petroicidae	N	Terrestrial	Predator	LC
Petroica phoenicea	Flame Robin	Petroicidae	N	Terrestrial	Predator	LC
Petroica rodinogaster	Pink Robin	Petroicidae	N	Terrestrial	Predator	LC
Petroica rosea	Rose Robin	Petroicidae	N	Terrestrial	Predator	LC

Poecilodryas cerviniventris	Buff-sided Robin	Petroicidae	N	Terrestrial	Predator	LC
Poecilodryas superciliosa	White-browed Robin	Petroicidae	N	Terrestrial	Predator	LC
Quoyornis georgianus	White-breasted Robin	Petroicidae	N	Terrestrial	Predator	LC
Tregellasia capito	Pale-yellow Robin	Petroicidae	N	Terrestrial	Predator	LC
Phaethon lepturus	White-tailed Tropicbird	Phaethontidae	Y	Marine/Coastal	Predator	LC
Phaethon rubricauda	Red-tailed Tropicbird	Phaethontidae	Y	Marine/Coastal	Predator	LC
Microcarbo melanoleucos	Little Pied Cormorant	Phalacrocoracidae	Y	Freshwater	Predator	LC
Phalacrocorax carbo	Great Cormorant	Phalacrocoracidae	Y	Freshwater	Predator	LC
Phalacrocorax fuscescens	Black-faced Cormorant	Phalacrocoracidae	Y	Marine/Coastal	Predator	LC
Phalacrocorax sulcirostris	Little Black Cormorant	Phalacrocoracidae	Y	Freshwater	Predator	LC
Phalacrocorax varius	Great Pied Cormorant	Phalacrocoracidae	Y	Marine/Coastal	Predator	LC
Coturnix pectoralis	Stubble Quail	Phasianidae	N	Terrestrial	Omnivore	LC
Gallus gallus	Red Junglefowl	Phasianidae	N	Terrestrial	Omnivore	LC
Meleagris gallopavo	Wild Turkey	Phasianidae	N	Terrestrial	Omnivore	LC
Pavo cristatus	Indian Peafowl	Phasianidae	N	Terrestrial	Omnivore	LC
Phasianus colchicus	Common Pheasant	Phasianidae	N	Terrestrial	Omnivore	LC
Synoicus chinensis	King Quail	Phasianidae	N	Terrestrial	Omnivore	LC
Synoicus ypsilophorus	Brown Quail	Phasianidae	N	Terrestrial	Omnivore	LC
Pitta iris	Rainbow Pitta	Pittidae	N	Terrestrial	Predator	LC
Pitta versicolor	Noisy Pitta	Pittidae	N	Terrestrial	Predator	LC
Podargus ocellatus	Marbled Frogmouth	Podargidae	N	Terrestrial	Predator	LC
Podargus strigoides	Tawny Frogmouth	Podargidae	N	Terrestrial	Predator	LC
Podiceps cristatus	Great Crested Grebe	Podicipedidae	Y	Freshwater	Predator	LC
Poliocephalus poliocephalus	Hoary-headed Grebe	Podicipedidae	Y	Freshwater	Predator	LC
Tachybaptus novaehollandiae	Australasian Grebe	Podicipedidae	Y	Freshwater	Predator	LC

Pomatostomus halli	Hall's Babbler	Pomatostomidae	N	Terrestrial	Predator	LC
Pomatostomus ruficeps	Chestnut-crowned Babbler	Pomatostomidae	N	Terrestrial	Predator	LC
Pomatostomus superciliosus	White-browed Babbler	Pomatostomidae	N	Terrestrial	Predator	LC
Pomatostomus temporalis	Grey-crowned Babbler	Pomatostomidae	N	Terrestrial	Predator	LC
Ardenna bulleri	Buller's Shearwater	Procellariidae	Y	Marine/Coastal	Predator	VU
Ardenna carneipes	Flesh-footed Shearwater	Procellariidae	Y	Marine/Coastal	Predator	NT
Ardenna grisea	Sooty Shearwater	Procellariidae	Y	Marine/Coastal	Predator	NT
Ardenna pacifica	Wedge-tailed Shearwater	Procellariidae	Y	Marine/Coastal	Predator	LC
Ardenna tenuirostris	Short-tailed Shearwater	Procellariidae	Y	Marine/Coastal	Predator	LC
Bulweria bulwerii	Bulwer's Petrel	Procellariidae	Y	Marine/Coastal	Predator	LC
Calonectris leucomelas	Streaked Shearwater	Procellariidae	Y	Marine/Coastal	Predator	NT
Macronectes giganteus	Southern Giant-Petrel	Procellariidae	Y	Marine/Coastal	Predator	LC
Macronectes halli	Northern Giant-Petrel	Procellariidae	Y	Marine/Coastal	Predator	LC
Pachyptila turtur	Fairy Prion	Procellariidae	Y	Marine/Coastal	Predator	LC
Pelecanoides urinatrix	Common Diving-Petrel	Procellariidae	Y	Marine/Coastal	Predator	LC
Procellaria aequinoctialis	White-chinned Petrel	Procellariidae	Y	Marine/Coastal	Predator	VU
Procellaria parkinsoni	Black Petrel	Procellariidae	Y	Marine/Coastal	Predator	VU
Pseudobulweria rostrata	Tahiti Petrel	Procellariidae	Y	Marine/Coastal	Predator	NT
Pterodroma gouldi	Grey-faced Petrel	Procellariidae	Y	Marine/Coastal	Predator	LC
Pterodroma lessonii	White-headed Petrel	Procellariidae	Y	Marine/Coastal	Predator	LC
Pterodroma leucoptera	Gould's Petrel	Procellariidae	Y	Marine/Coastal	Predator	VU
Pterodroma macroptera	Great-winged Petrel	Procellariidae	Y	Marine/Coastal	Predator	LC
Pterodroma mollis	Soft-plumaged Petrel	Procellariidae	Y	Marine/Coastal	Predator	LC
Pterodroma neglecta	Kermadec Petrel	Procellariidae	Y	Marine/Coastal	Predator	LC

Pterodroma nigripennis	Black-winged Petrel	Procellariidae	Y	Marine/Coastal	Predator	LC
Pterodroma solandri	Providence Petrel	Procellariidae	Y	Marine/Coastal	Predator	LC
Puffinus assimilis	Little Shearwater	Procellariidae	Y	Marine/Coastal	Predator	LC
Puffinus gavia	Fluttering Shearwater	Procellariidae	Y	Marine/Coastal	Predator	LC
Puffinus huttoni	Hutton's Shearwater	Procellariidae	Y	Marine/Coastal	Predator	EN
Alisterus scapularis	Australian King-Parrot	Psittacidae	N	Terrestrial	Omnivore	LC
Aprosmictus erythropterus	Red-winged Parrot	Psittacidae	N	Terrestrial	Omnivore	LC
Barnardius zonarius	Australian Ringneck	Psittacidae	N	Terrestrial	Omnivore	LC
Cyclopsitta diophthalma	Double-eyed Fig-Parrot	Psittacidae	N	Terrestrial	Omnivore	LC
Glossopsitta concinna	Musk Lorikeet	Psittacidae	Y	Terrestrial	Omnivore	LC
Glossopsitta porphyrocephala	Purple-crowned Lorikeet	Psittacidae	Y	Terrestrial	Omnivore	LC
Glossopsitta pusilla	Little Lorikeet	Psittacidae	N	Terrestrial	Omnivore	LC
Lathamus discolor	Swift Parrot	Psittacidae	Y	Terrestrial	Omnivore	CR
Melopsittacus undulatus	Budgerigar	Psittacidae	Y	Terrestrial	Plant-based diet	LC
Neophema chrysogaster	Orange-bellied Parrot	Psittacidae	Y	Terrestrial	Plant-based diet	CR
Neophema chrysostoma	Blue-winged Parrot	Psittacidae	N	Terrestrial	Plant-based diet	VU
Neophema elegans	Elegant Parrot	Psittacidae	N	Terrestrial	Plant-based diet	LC
Neophema petrophila	Rock Parrot	Psittacidae	N	Terrestrial	Plant-based diet	LC
Neophema pulchella	Turquoise Parrot	Psittacidae	N	Terrestrial	Plant-based diet	LC
Neophema splendida	Scarlet-chested Parrot	Psittacidae	N	Terrestrial	Plant-based diet	LC
Neopsephotus bourkii	Bourke's Parrot	Psittacidae	N	Terrestrial	Plant-based diet	LC
Northiella haematogaster	Bluebonnet	Psittacidae	N	Terrestrial	Omnivore	LC
Pezoporus occidentalis	Night Parrot	Psittacidae	N	Terrestrial	Plant-based diet	CR
Pezoporus wallicus	Ground Parrot	Psittacidae	N	Terrestrial	Plant-based diet	LC

Platycercus adscitus	Pale-headed Rosella	Psittacidae	N	Terrestrial	Omnivore	LC
Platycercus caledonicus	Green Rosella	Psittacidae	N	Terrestrial	Omnivore	LC
Platycercus elegans	Crimson Rosella	Psittacidae	Y	Terrestrial	Omnivore	LC
Platycercus eximius	Eastern Rosella	Psittacidae	N	Terrestrial	Omnivore	LC
Platycercus icterotis	Western Rosella	Psittacidae	N	Terrestrial	Omnivore	LC
Platycercus venustus	Northern Rosella	Psittacidae	N	Terrestrial	Omnivore	LC
Polytelis alexandrae	Princess Parrot	Psittacidae	Y	Terrestrial	Plant-based diet	NT
Polytelis anthopeplus	Regent Parrot	Psittacidae	Y	Terrestrial	Plant-based diet	LC
Polytelis swainsonii	Superb Parrot	Psittacidae	N	Terrestrial	Plant-based diet	LC
Psephotellus chrysopterygius	Golden-shouldered Parrot	Psittacidae	N	Terrestrial	Plant-based diet	EN
Psephotellus dissimilis	Hooded Parrot	Psittacidae	N	Terrestrial	Plant-based diet	LC
Psephotellus varius	Mulga Parrot	Psittacidae	N	Terrestrial	Plant-based diet	LC
Psephotus haematonotus	Red-rumped Parrot	Psittacidae	Y	Terrestrial	Plant-based diet	LC
Psitteuteles versicolor	Varied Lorikeet	Psittacidae	N	Terrestrial	Plant-based diet	LC
Purpureicephalus spurius	Red-capped Parrot	Psittacidae	N	Terrestrial	Omnivore	LC
Trichoglossus chlorolepidotus	Scaly-breasted Lorikeet	Psittacidae	Y	Terrestrial	Omnivore	LC
Trichoglossus moluccanus	Rainbow Lorikeet	Psittacidae	Y	Terrestrial	Omnivore	LC
Trichoglossus rubritorquis	Red-collared Lorikeet	Psittacidae	Y	Terrestrial	Omnivore	LC
Psophodes cristatus	Chirruping Wedgebill	Psophodidae	N	Terrestrial	Omnivore	LC
Psophodes nigrogularis	Western Whipbird	Psophodidae	N	Terrestrial	Omnivore	LC
Psophodes occidentalis	Chiming Wedgebill	Psophodidae	N	Terrestrial	Omnivore	LC
Psophodes olivaceus	Eastern Whipbird	Psophodidae	N	Terrestrial	Omnivore	LC
Ailuroedus crassirostris	Green Catbird	Ptilonorhynchidae	N	Terrestrial	Omnivore	LC
Chlamydera guttata	Western Bowerbird	Ptilonorhynchidae	N	Terrestrial	Omnivore	LC

Chlamydera maculata	Spotted Bowerbird	Ptilonorhynchidae	N	Terrestrial	Omnivore	LC
Chlamydera nuchalis	Great Bowerbird	Ptilonorhynchidae	N	Terrestrial	Omnivore	LC
Ptilonorhynchus violaceus	Satin Bowerbird	Ptilonorhynchidae	N	Terrestrial	Omnivore	LC
Sericulus chrysocephalus	Regent Bowerbird	Ptilonorhynchidae	N	Terrestrial	Omnivore	LC
Amaurornis cinerea	White-browed Crake	Rallidae	N	Freshwater	Omnivore	LC
Amaurornis moluccana	Pale-vented Bush-hen	Rallidae	N	Freshwater	Omnivore	LC
Eulabeornis castaneoventris	Chestnut Rail	Rallidae	N	Marine/Coastal	Predator	LC
Fulica atra	Eurasian Coot	Rallidae	Y	Freshwater	Plant-based diet	LC
Gallinula tenebrosa	Dusky Moorhen	Rallidae	N	Freshwater	Omnivore	LC
Hypotaenidia philippensis	Buff-banded Rail	Rallidae	N	Freshwater	Omnivore	LC
Hypotaenidia sylvestris	Lord Howe Woodhen	Rallidae	N	Terrestrial	Omnivore	EN
Lewinia pectoralis	Lewin's Rail	Rallidae	N	Freshwater	Omnivore	LC
Porphyrio porphyrio	Purple Swamphen	Rallidae	Y	Freshwater	Omnivore	LC
Porzana fluminea	Australian Spotted Crake	Rallidae	N	Freshwater	Omnivore	LC
Tribonyx mortierii	Tasmanian Native-hen	Rallidae	N	Freshwater	Omnivore	LC
Tribonyx ventralis	Black-tailed Native-hen	Rallidae	Y	Freshwater	Omnivore	LC
Zapornia pusilla	Baillon's Crake	Rallidae	N	Freshwater	Predator	LC
Zapornia tabuensis	Spotless Crake	Rallidae	N	Freshwater	Omnivore	LC
Himantopus leucocephalus	Pied Stilt	Recurvirostridae	N	Terrestrial	Predator	LC
Cladorhynchus leucocephalus	Banded Stilt	Recurvirostridae	Y	Freshwater	Predator	LC
Recurvirostra novaehollandiae	Red-necked Avocet	Recurvirostridae	Y	Freshwater	Predator	LC
Rhipidura albiscapa	Grey Fantail	Rhipiduridae	N	Terrestrial	Predator	LC
Rhipidura dryas	Arafura Fantail	Rhipiduridae	N	Terrestrial	Predator	LC
Rhipidura isura	Northern Fantail	Rhipiduridae	N	Terrestrial	Predator	LC
Rhipidura leucophrys	Willie Wagtail	Rhipiduridae	N	Terrestrial	Predator	LC

Rhipidura phasiana	Mangrove Fantail	Rhipiduridae	N	Terrestrial	Predator	LC
Rhipidura rufifrons	Rufous Fantail	Rhipiduridae	N	Terrestrial	Predator	LC
Rostratula australis	Australian Painted-Snipe	Rostratulidae	N	Freshwater	Omnivore	EN
Actitis hypoleucos	Common Sandpiper	Scolopacidae	Y	Freshwater	Predator	LC
Arenaria interpres	Ruddy Turnstone	Scolopacidae	Y	Marine/Coastal	Predator	NT
Calidris acuminata	Sharp-tailed Sandpiper	Scolopacidae	Y	Freshwater	Predator	VU
Calidris alba	Sanderling	Scolopacidae	Y	Marine/Coastal	Predator	LC
Calidris canutus	Red Knot	Scolopacidae	Y	Marine/Coastal	Predator	NT
Calidris falcinellus	Broad-billed Sandpiper	Scolopacidae	Y	Freshwater	Predator	VU
Calidris ferruginea	Curlew Sandpiper	Scolopacidae	Y	Marine/Coastal	Predator	VU
Calidris melanotos	Pectoral Sandpiper	Scolopacidae	Y	Freshwater	Predator	LC
Calidris ruficollis	Red-necked Stint	Scolopacidae	Y	Marine/Coastal	Predator	NT
Calidris subminuta	Long-toed Stint	Scolopacidae	Y	Freshwater	Predator	LC
Calidris tenuirostris	Great Knot	Scolopacidae	Y	Marine/Coastal	Predator	EN
Gallinago hardwickii	Latham's Snipe	Scolopacidae	Y	Terrestrial	Predator	NT
Limosa lapponica	Bar-tailed Godwit	Scolopacidae	Y	Marine/Coastal	Predator	NT
Limosa limosa	Black-tailed Godwit	Scolopacidae	Y	Marine/Coastal	Predator	NT
Numenius madagascariensis	Far Eastern Curlew	Scolopacidae	Y	Marine/Coastal	Predator	EN
Numenius minutus	Little Curlew	Scolopacidae	Y	Marine/Coastal	Predator	LC
Numenius phaeopus	Whimbrel	Scolopacidae	Y	Marine/Coastal	Predator	LC
Tringa brevipes	Grey-tailed Tattler	Scolopacidae	Y	Freshwater	Predator	LC
Tringa glareola	Wood Sandpiper	Scolopacidae	Y	Freshwater	Predator	LC
Tringa incana	Wandering Tattler	Scolopacidae	Y	Freshwater	Predator	LC
Tringa nebularia	Common Greenshank	Scolopacidae	Y	Freshwater	Predator	LC
Tringa stagnatilis	Marsh Sandpiper	Scolopacidae	Y	Freshwater	Predator	LC
Xenus cinereus	Terek Sandpiper	Scolopacidae	Y	Marine/Coastal	Predator	LC

Eudyptula minor	Little Penguin	Spheniscidae	Y	Marine/Coastal	Predator	LC
Catharacta antarctica	Brown Skua	Stercorariidae	Y	Marine/Coastal	Predator	LC
Stercorarius parasiticus	Arctic Jaeger	Stercorariidae	Y	Marine/Coastal	Predator	LC
Stercorarius pomarinus	Pomarine Jaeger	Stercorariidae	Y	Marine/Coastal	Predator	LC
Ninox boobook	Southern Boobook	Strigidae	N	Terrestrial	Predator	LC
Ninox connivens	Barking Owl	Strigidae	N	Terrestrial	Predator	LC
Ninox leucopsis	Tasmanian Boobook	Strigidae	N	Terrestrial	Predator	LC
Ninox natalis	Christmas Island Boobook	Strigidae	N	Terrestrial	Predator	VU
Ninox novaeseelandiae	Tasman Morepork	Strigidae	N	Terrestrial	Predator	LC
Ninox rufa	Rufous Owl	Strigidae	N	Terrestrial	Predator	LC
Ninox strenua	Powerful Owl	Strigidae	N	Terrestrial	Predator	LC
Corcorax melanorhamphos	White-winged Chough	Struthideidae	N	Terrestrial	Omnivore	LC
Struthidea cinerea	Apostlebird	Struthideidae	N	Terrestrial	Omnivore	LC
Acridotheres tristis	Common Myna	Sturnidae	Y	Terrestrial	Omnivore	LC
Aplonis metallica	Metallic Starling	Sturnidae	Y	Terrestrial	Omnivore	LC
Sturnus vulgaris	Common Starling	Sturnidae	Y	Terrestrial	Omnivore	LC
Morus serrator	Australasian Gannet	Sulidae	Y	Marine/Coastal	Predator	LC
Sula dactylatra	Masked Booby	Sulidae	Y	Marine/Coastal	Predator	LC
Sula leucogaster	Brown Booby	Sulidae	Y	Marine/Coastal	Predator	LC
Sula sula	Red-footed Booby	Sulidae	Y	Marine/Coastal	Predator	LC
Platalea flavipes	Yellow-billed Spoonbill	Threskiornithidae	Y	Freshwater	Predator	LC
Platalea regia	Royal Spoonbill	Threskiornithidae	Y	Freshwater	Predator	LC
Plegadis falcinellus	Glossy Ibis	Threskiornithidae	Y	Freshwater	Predator	LC
Threskiornis moluccus	Australian White Ibis	Threskiornithidae	Y	Freshwater	Predator	LC
Threskiornis spinicollis	Straw-necked Ibis	Threskiornithidae	Y	Terrestrial	Predator	LC
Turdus merula	Common Blackbird	Turdidae	N	Terrestrial	Omnivore	LC
Zoothera heinei	Russet-tailed Thrush	Turdidae	N	Terrestrial	Omnivore	LC

Zoothera lunulata	Bassian Thrush	Turdidae	N	Terrestrial	Omnivore	LC
Turnix castanotus	Chestnut-backed Button-quail	Turnicidae	N	Terrestrial	Omnivore	LC
Turnix maculosus	Red-backed Button-quail	Turnicidae	N	Terrestrial	Omnivore	LC
Turnix melanogaster	Black-breasted Button-quail	Turnicidae	N	Terrestrial	Omnivore	VU
Turnix olivii	Buff-breasted Button-quail	Turnicidae	N	Terrestrial	Omnivore	CR
Turnix pyrrhothorax	Red-chested Button-quail	Turnicidae	N	Terrestrial	Omnivore	LC
Turnix varius	Painted Button-quail	Turnicidae	N	Terrestrial	Omnivore	LC
Turnix velox	Little Button-quail	Turnicidae	N	Terrestrial	Omnivore	LC
Tyto alba	Barn Owl	Tytonidae	N	Terrestrial	Predator	LC
Tyto longimembris	Eastern Grass Owl	Tytonidae	N	Terrestrial	Predator	LC
Tyto multipunctata	Lesser Sooty Owl	Tytonidae	N	Terrestrial	Predator	LC
Tyto novaehollandiae	Masked Owl	Tytonidae	N	Terrestrial	Predator	LC
Tyto tenebricosa	Greater Sooty Owl	Tytonidae	N	Terrestrial	Predator	LC
Zosterops lateralis	Silvereye	Zosteropidae	N	Terrestrial	Omnivore	LC
Zosterops luteus	Australian Yellow White-eye	Zosteropidae	N	Terrestrial	Omnivore	LC
Zosterops natalis	Christmas Island White-eye	Zosteropidae	N	Terrestrial	Omnivore	LC
Zosterops tenuirostris	Slender-billed White-eye	Zosteropidae	N	Terrestrial	Omnivore	VU

*Table S3. Predicted HPAI H5N1 susceptibility of Australian bird families, as indicated by the predicted number of HPAI notifications. Because we used a null, phylogeny-only model with a family-level phylogeny to make predictions, the predictions do not vary with species within families. Families with a * denote families not represented in the WAHIS database (either because they are Australian endemics or because they lack detection/reporting of HPAI), for whom our certainty in our predictions might be lower (such as Anhingidae – see discussion). Table is arranged from most to least susceptible.*

Family	**Predicted notifications**
Sulidae	78
Anhingidae *	54
Laridae	51
Anatidae	48
Pelecanidae	40
Corvidae	30
Gruidae	29
Megapodidae *	27
Anseranatidae *	27
Falconidae	25
Accipitridae	24
Glareolidae *	21
Turnicidae *	21
Jacanidae *	21
Rostratulidae *	21
Pedionomidae *	21
Tytonidae	18
Ciconiidae	18
Casuariidae *	16
Ardeidae	15
Phaethontidae *	13
Coraciidae *	12
Alcedinidae *	12
Burhinidae *	12
Phalacrocoracidae	11
Stercorariidae	11
Petroicidae *	10
Struthideidae *	10
Paradisaeidae *	10
Monarchidae *	10
Dicruridae *	10
Rhipiduridae *	10
Artamidae *	10
Oriolidae *	10
Pachycephalidae *	10
Psophodidae *	10
Neosittidae *	10

Campephagidae *	10
Cinclosomatidae *	10
Strigidae	9
Columbidae	7
Phasianidae	7
Orthonychidae *	6
Pomatostomidae *	6
Acanthizidae *	6
Pardalotidae *	6
Meliphagidae *	6
Maluridae *	6
Ptilonorhynchidae *	6
Climacteridae *	6
Menuridae *	6
Pittidae *	6
Spheniscidae	5
Podicipedidae	5
Passeridae	4
Cacatuidae *	4
Threskiornithidae	4
Fregatidae	4
Procellariidae	4
Apodidae *	4
Aegothelidae *	4
Podargidae *	4
Cuculidae *	4
Otididae *	4
Rallidae	4
Sturnidae	3
Oceanitidae *	3
Diomedeidae	3
Scolopacidae	3
Haematopodidae	3
Motacillidae *	2
Nectariniidae *	2
Dicaeidae *	2
Turdidae	2
Locustellidae *	2
Cisticolidae *	2
Acrocephalidae *	2
Alaudidae *	2
Pandionidae	2
Recurvirostridae *	2
Fringillidae	1
Estrildidae	1
Zosteropidae *	1

Hirundinidae	1
Psittacidae	1
Caprimulgidae	1
Charadriidae	1
Numididae	1

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Figure S1. LOO ELPD estimates of the full model with ecological traits and the null, phylogeny-only model. The substantial overlap of SEs in the computed LOO ELPD mean the model fit does not drastically improve when adding the ecological variables in our full model.