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Wildlife Research

Supplementary Material

Towards automated detection of the endangered southern black-throated finch (*Poephila cincta cincta*)

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Supporting Information

Table S1 Performance metrics for each model architecture at default 0.5 threshold (Recall, Precision and F1-score), and the area under the precision-recall curve (PRAUC).

Species	Model	2018				2020			
		Recall	Precision	F1	PRAUC	Recall	Precision	F1	PRAUC
Black-throated finch	InceptionResnetV2	0.914	0.439	0.593	0.811	0.832	0.595	0.694	0.790
	InceptionV3	0.882	0.532	0.664	0.826	0.872	0.606	0.715	0.813
	ResNet50	0.838	0.510	0.634	0.774	0.875	0.557	0.680	0.796
Double-barred finch	InceptionResnetV2	0.868	0.637	0.735	0.870	0.802	0.698	0.746	0.815
	InceptionV3	0.860	0.651	0.741	0.864	0.869	0.794	0.830	0.882
	ResNet50	0.800	0.796	0.798	0.844	0.889	0.694	0.780	0.856

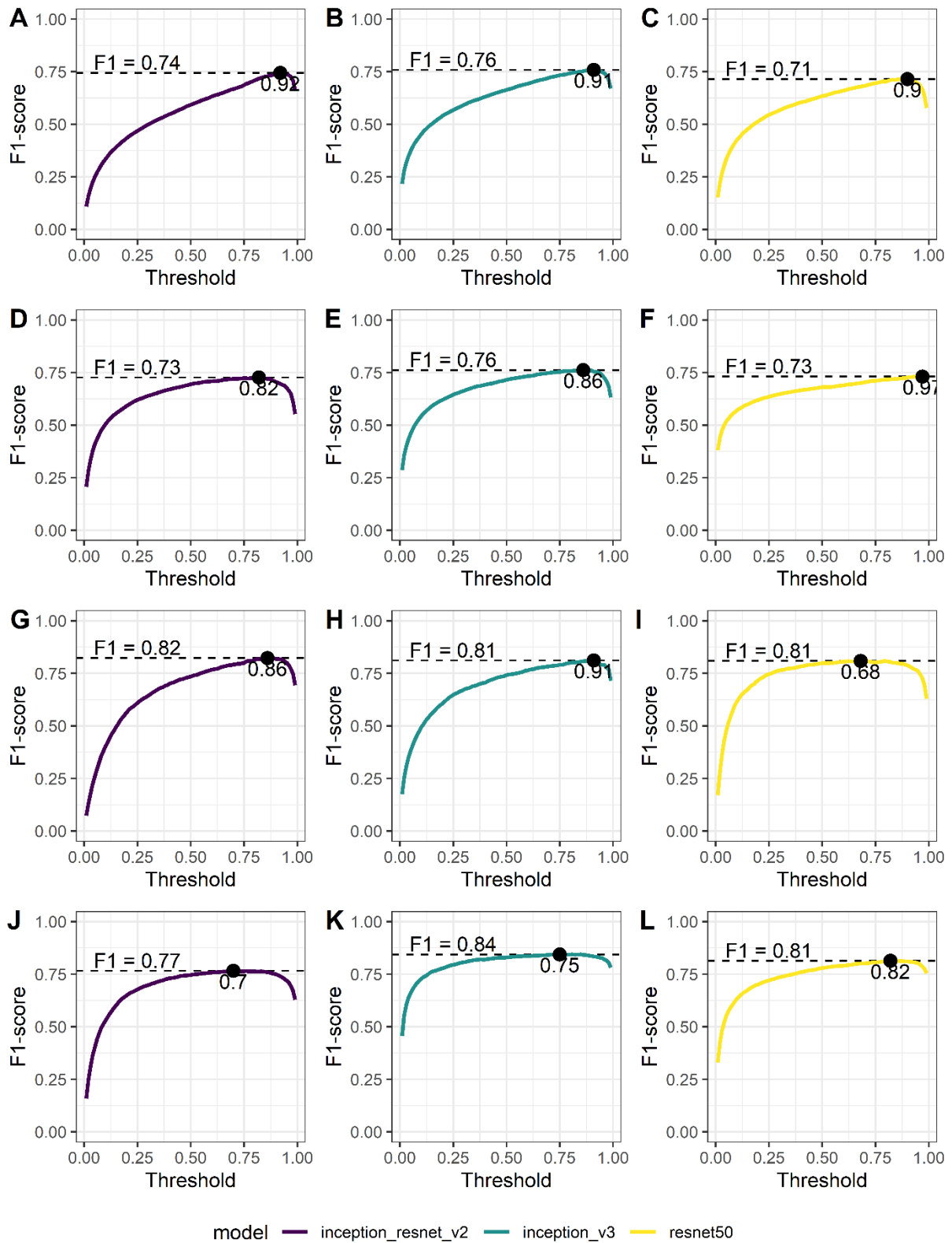


Figure S1 Plots of threshold and F1-score for each model predicting black-throated finch (A-F) and double-barrred finch vocalisations (G-L). Models A-C and G-I are trained on 2018 recordings and predicted on 2020 recordings. Models D-F and J-L are trained on 2020 recordings and predicted on 2018 recordings.

Table S2 Comparison of southern black-throated finch detections and double-barred finch detections using on-site surveys (P: point counts and T: transects) and from A: audio recordings in 2020 at Townsville Coastal Plains sites. 0 = no detections and 1 = at least one detection. Bold indicates disagreement between site presence determined using on-site surveys and audio recordings.

	Black-throated finch			Double-barred finch		
	P	T	A	P	T	A
TAHD	1	1	1	1	1	1
TCWD	1	1	1	1	1	1
TDGD	0	0	0	1	0	1
TDRT	0	0	0	1	1	1
TJNP	0	0	0	0	0	0
TKTP	0	0	1	1	1	1
TLSD	1	0	1	1	0	1
TMCD	1	0	1	1	1	1
TMMD	0	0	1	1	1	1
TRCK	0	0	0	1	1	1

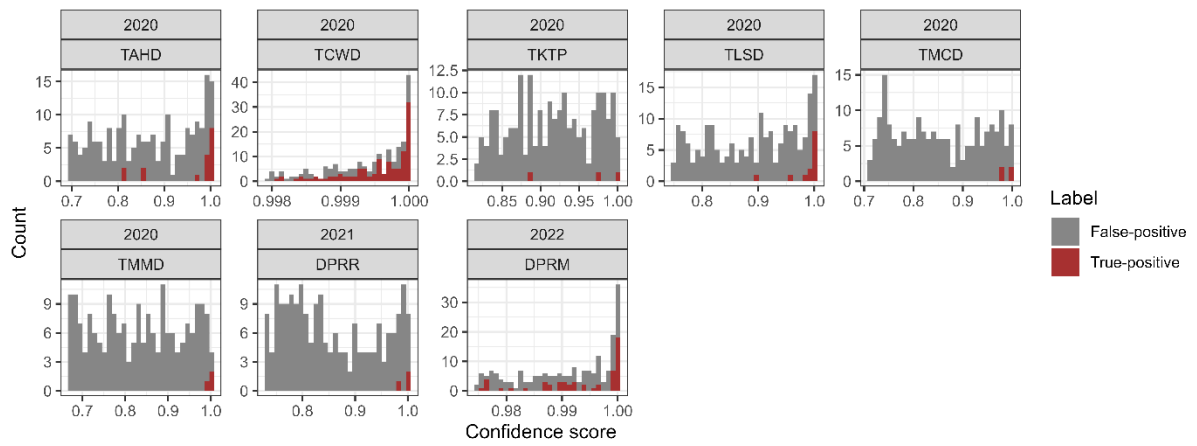


Figure S2 Histograms of model confidence scores and validated class (True-positive = red, False-positive = grey) for the southern black-throated finch. Only surveys with at least one true-positive are displayed.

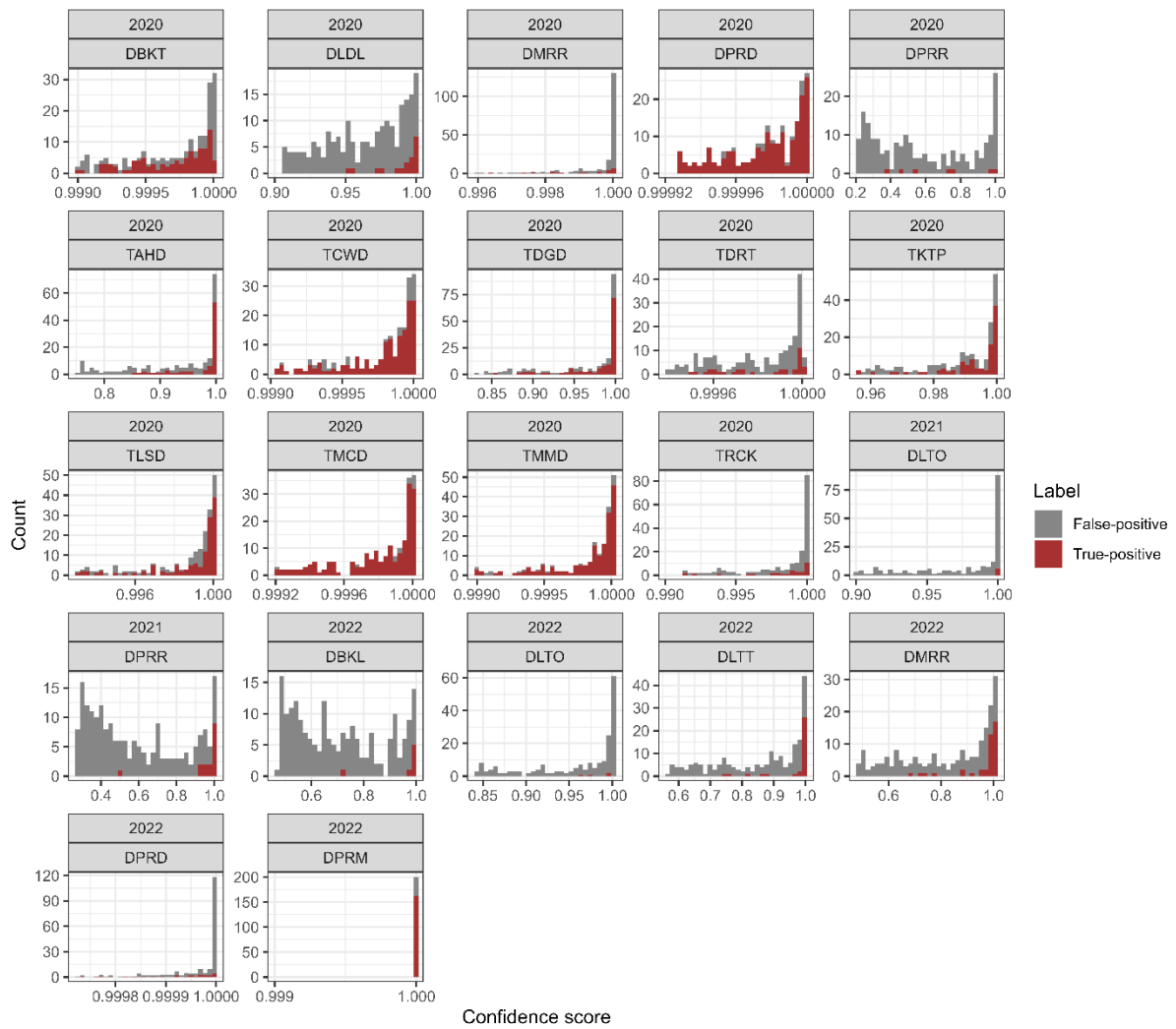


Figure S3 Histograms of model confidence scores and validated class (True-positive = red, False-positive = grey) for the double-barred finch. Only surveys with at least one true-positive are displayed.