

Pale-headed Brush-finch (*Atlapetes pallidiceps*)

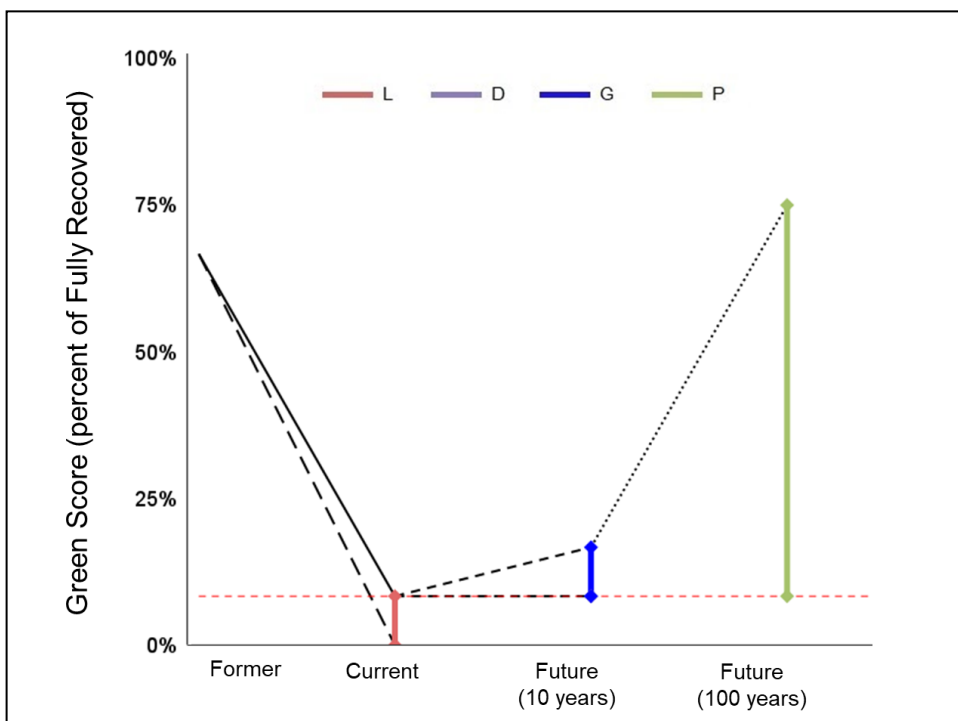


Figure S1. Graphical representation of the conservation metrics based on the Green Scores. Key: Vertical arrows represent the four conservation metrics: L – Conservation Legacy (may not appear if current and counterfactual states are the same); D – Conservation Dependence (may not appear if current and future-without-conservation states are the same); G – Conservation Gain (may not appear if current and future-with-conservation states are the same); P – Recovery Potential (may not appear if current and potential states are the same). Horizontal red dashed line represents the Current Green Score. Solid black line: observed change in the Green Score of the species (ignore it if "Former" state is not specified). Long-dashed black line: (counterfactual) past change expected in the absence of past conservation efforts. Dashed black lines: future scenarios of change expected with and without current and future conservation efforts. Dotted black line: long-term potential change expected with future conservation innovation and efforts.

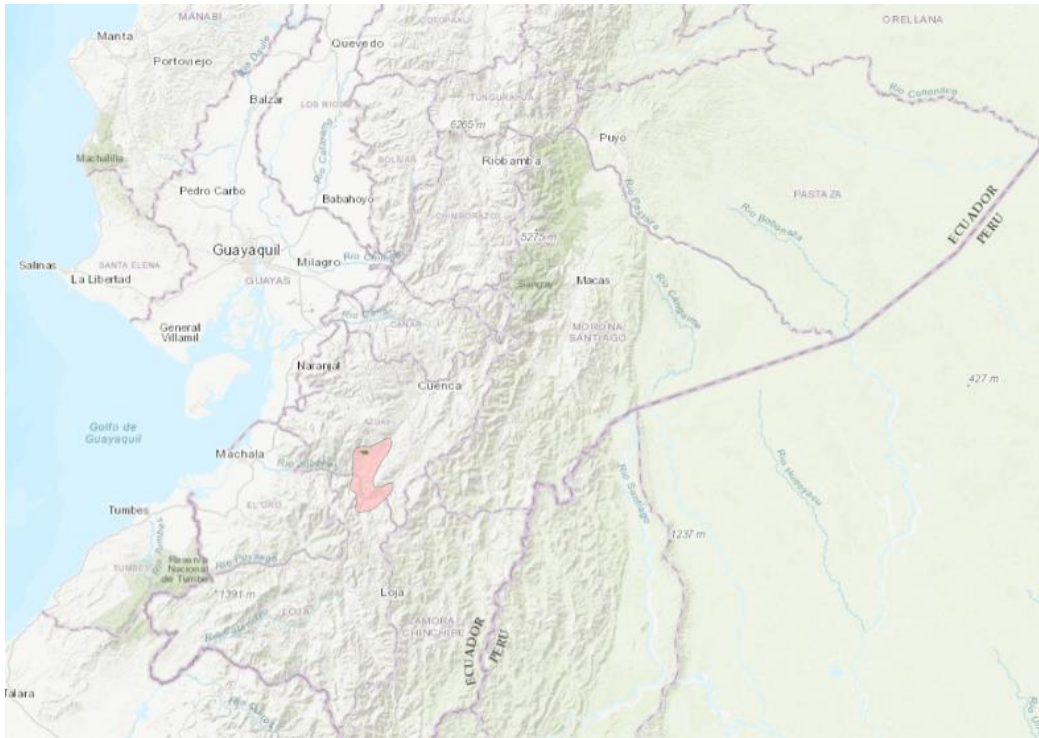


Figure S2. Overview of the species' range in southern Ecuador.

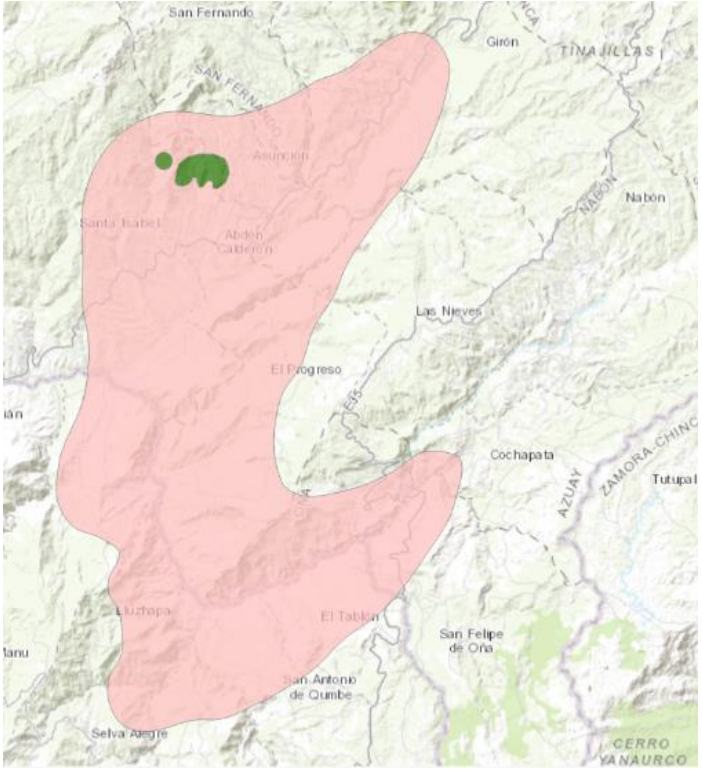


Figure S3. Close-up of the indigenous range, modified from BirdLife International (2021). The only area currently occupied by the species is shaded green, while the range where it is listed as Possibly Extinct is shaded red.

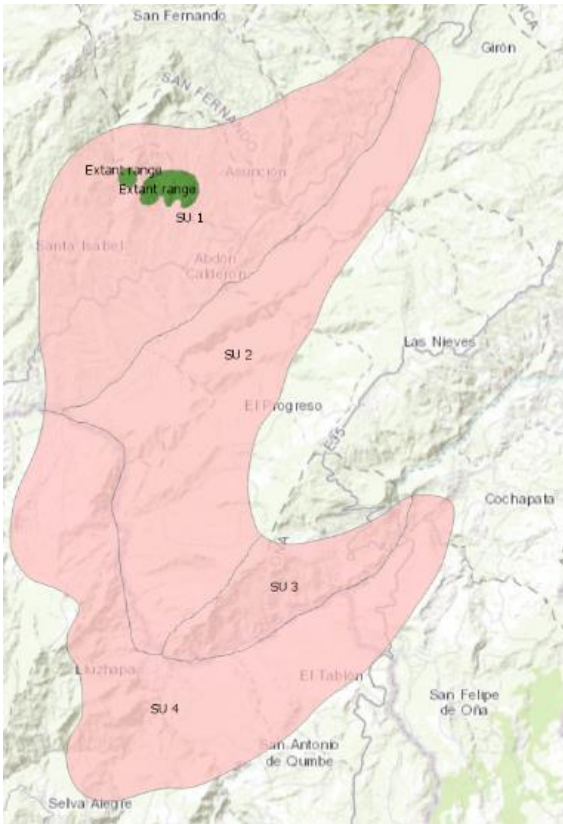


Figure S4. Delimitation of the four spatial units used for this assessment.

Table S1. Conservation Actions ([list of action codes](#))

Spatial unit	Name	Past actions (no longer occurring)	Current actions	Actions planned within 10 years	Actions that could be implemented in the long-term aspiration scenario	Notes
SU 1	Northern Yunguilla Valley	2.2	1.1, 2.1, 4.3	1.1, 2.1, 4.3	1.1, 2.1, 2.3, 3.3.1, 4.3	In the 'current' scenario, the latest protected area was created two years ago, so this would probably not be 'current'. At present there is a local NGO trying to buy land to install private protected areas (or to increase the existing one) and working with the communities to create municipal reserves. The work to establish new reserves is currently ongoing.
SU 2	Southern Yunguilla Valley	none	none	none	1.1, 3.3.1, 4.3	
SU 3	Northern Oña Valley	none	none	none	3.3.1, 4.3	
SU 4	Southern Oña Valley	none	none	none	3.3.1, 4.3	

Table S2. Threats (list of [threat codes](#))

Spatial unit	Name	Past threats (no longer occurring)	Current threats	Threats expected to emerge or continue over next 10 years	Threats that would be relevant in the long-term aspiration scenario
SU 1	Northern Yunguilla Valley	8.1.2	1.1, 2.2.1, 2.3.2, 7.1.1, 11.2	1.1, 2.2.1, 2.3.2, 6.1, 7.1.1, 11.2	1.1, 2.2.1, 6.1, 7.1.1, 11.2
SU 2	Southern Yunguilla Valley		1.1, 2.2.1, 2.3.2, 8.1.2	1.1, 2.2.1, 2.3.2, 6.1, 7.1.1, 8.1.2, 11.2	2.2.1, 7.1.1, 8.1.2, 11.2
SU 3	Northern Oña Valley		2.1.1, 2.3.2, 8.1.2, 11.2	2.2.1, 2.3.2, 8.1.2, 11.2	2.2.1, 7.1.1, 8.1.2, 11.2
SU 4	Southern Oña Valley		1.1, 2.1.1, 2.3.2, 8.1.2, 11.2	1.1, 2.2.1, 2.3.2, 6.1, 7.1.1, 8.1.2, 11.2	2.2.1, 7.1.1, 8.1.2, 11.2

Table S3. Species Recovery Score and Scenarios Supplementary Information:
 The calculator tool and logic behind state choices can be viewed here:
<https://oxford.onlinesurveys.ac.uk/species-recovery-status-calculator>

Calculator Results		
0. Completion Date	2019-10-29	2019-10-30
1. Which species are you currently assessing? (You will have to re-enter this at the start of each use of the tool, even if you are still working on the same assessment).	<i>Atlapetes pallidiceps</i>	<i>Atlapetes pallidiceps</i>
2. Which spatial unit are you assessing? (You have named these on Tab 2 of the assessment workbook. If you have not completed this stage yet and are using this tool in an exploratory way, you can write 'test' here.)	Northern Yunguilla Valley	Others
3. Which scenario are you assessing this spatial unit for? (see Tab 4-8. If using this tool in an exploratory way, choose 'Other'.)	Current	Current
4. Population Size (number of all individuals in the Wild in the spatial unit)	>0	0
5. Within the unit being considered, is there a continuing decline in ANY of the following? -Population size -extent of occurrence (EOO; i.e., a minimum convex polygon containing all occurrences of the species) -area of occupancy (AOO; i.e., occupied habitat, measured in 2 x 2 km grid cells) -Habitat quality	No	
6. What is the number of mature individuals in the wild in the spatial unit?		
7. What is the extent of occurrence (EOO) of the species within the spatial unit, measured as minimum convex polygon containing all occurrences?		
8. What is the area of occupancy (AOO) of the species within the spatial unit (i.e., occupied habitat, measured in 2 x 2 km grid cells)?		
9. Is there evidence for a past or expected future population reduction of 20% or more over three generations or 10 years, whichever is the greater? (For predicted future population reduction, maximum 100 years into the future)		
10. What is the number of mature individuals in the wild in the spatial unit?	0-1,000	
11. Is there evidence for a past or future population reduction of 30% or more over three generations or 10 years, whichever is the greater? (For predicted future population reduction, use a maximum of 100 years into the future)		
12. Does the species qualify as Very Restricted within the spatial unit? (i.e., it occupies a very small area (typically less than 20 km ²) or few locations (typically five or fewer) within the spatial unit, such that plausible events may cause the species to decline or become EN/CR/EX in a short time- see Red List Guidelines)		

13. What is the extent of occurrence (EOO) of the species within the spatial unit, measured as minimum convex polygon?		
14. What is the area of occupancy (AOO) of the species within the spatial unit? (i.e., occupied habitat, measured in 2 x 2 km grid cells)		
15. Does the species experience extreme fluctuations within the spatial unit? (i.e., frequent, 10-fold or larger variation over time in either population size or area)?		
16. What is the number of locations within the spatial unit? (A location is a geographically or ecologically distinct area in which a single threatening event can rapidly affect all individuals of the taxon present)		
17. Is the taxon severely fragmented within the spatial unit? (i.e., most individuals in small and relatively isolated subpopulations)		
18. Is there evidence for a potential rescue effect? (Immigration from other spatial units reducing extirpation risk in this spatial unit to Least Concern OR Near Threatened and not declining)	No	
19. Is the population in this spatial unit naturally small (i.e., the small range and/or small number of individuals is NOT due to human effects or interference) and are ALL of the following conditions met: 1) The population within spatial unit is not declining, 2) The spatial unit is not under a specific threat, and 3) It can be assumed that the function of the species in the spatial unit has not changed significantly since the baseline year (1750 default)?	No	No
20. Does the species occur at an appropriate ecological density which allows it to perform its ecological function(s)* throughout the spatial unit? Note: The ecological functions of a species and the appropriate ecological density are determined by you, the assessor, because these properties vary greatly from species to species. If you have not already filled out Tab 3 of the Green List Assessment Workbook ("Define and Quantify Functionality"), do so before answering this question.		
21. Status	PRESENT	ABSENT

Appendix 1. Assessor Self-Review

1. **Disclose any potential conflicts of interest, which could bias the assessment.**

NA

2. **Is there any discrepancy between this assessment and the Red List assessment for the species? If so, comment on the likely reason for this discrepancy.**

This assessment uses the updated generation length for this species (2.65 years, as per the latest reassessment of bird generation lengths using the methodology described in Bird *et al.* 2020), while the Red List account still lists the old generation length of 3.1 years. This has, however, no impact on this assessment. For this assessment, I have updated the species' range map (produced by BirdLife International) by refining the possibly extinct range to obtain a more precise delimitation of the indigenous range. While there is no exact information on the indigenous range, historical and current records suggest an upper elevation limit of 2,100 m for this species. I have therefore erased areas above this elevation from the range map before assigning spatial units.

3. **Review the impact that you assigned to the various threats and conservation actions. Would the trajectory of the species be very different if other choices were made? If so, review your justification for these choices. If appropriate, widen the bounds on tabs 4 and 5-8 (change the lower and upper plausible values) to reflect the uncertainty introduced by the possibility of these other choices. How, if at all, did this review question cause this assessment to change? If no changes were needed, please write "no changes".**

No changes.

There is detailed information on the species' population size and trend from modelling the historical population size before declines have started, the likely time frame of population declines (per Hartmann *et al.* 2014), as well as exact count data and trend estimates since its rediscovery in 1998 (per BirdLife International 2021 and references therein). This allows the assessment of the impacts that threats and conservation actions had and are still having on the population trend. Therefore, the scores assigned for threats and conservation actions are likely to be accurate.

References

- Bird, J.P., Martin, R., Akçakaya, H.R., Gilroy, J. Burfield, I.J., Garnett, S.G., Symes, A., Taylor, J., Şekercioğlu, C.H. and Butchart, S.H.M. 2020. Generation lengths of the world's birds and their implications for extinction risk. *Conservation Biology* 34(5): 1252–1261.
- BirdLife International. 2021. Species factsheet: *Atlapetes pallidiceps*. Downloaded from <http://www.birdlife.org> on 17/08/202.
- Hartmann, S.A., Schaefer, H.M. and Segelbacher, G. 2014. Genetic depletion at adaptive but not neutral loci in an endangered bird species. *Molecular Ecology* 23: 5712–5725.