The influence of clearcut harvesting on bird communities in an adjacent protected area in Nova Scotia: Implications for buffer implementation

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Human activities adjacent to protected areas have been intensifying as human populations grow, with protected areas in some regions effectively becoming islands within a sea of human development. Studies examining effects of forest harvesting and deforestation on biodiversity in adjacent protected areas have been limited in northern regions. Due to concerns about impacts of low-retention or clearcut harvesting on biodiversity in adjacent protected areas, the Province of Nova Scotia implemented in 2019 interim harvesting guidelines for areas adjacent to all parks and protected areas. To examine effectiveness of these guidelines, we designed a study to quantify the relative influence of previous clearcut harvesting immediately adjacent to Cloud Lake Wilderness Area based on changes in bird communities along transects beginning 100 m inside clearcuts and extending 300 m into the protected area. Analyses revealed clear differences in bird communities among transect points; clearcut and edge bird communities differed significantly from those 200 and 300 m inside the protected area. The weight of evidence from our study indicated that the zone of influence from clearcut harvesting on birds in adjacent forests is at least 100 m for many species. This suggests that a minimum harvesting and development buffer adjacent to protected areas between 100 and 200 m would be a reasonable management approach if the objective is to minimize effects on bird communities. Studies using additional taxa and retention levels would be needed to fully identify which management practices would best maintain biodiversity within a protected area.

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