Appendix I. Projected changes in 20 boreal bird species and multiple forest age classes over 50 years, based on the resulting forest age-structure over time from the Patchworks and NRV scenario s described in this paper. R project scripts are available online at https://github.com/borealbirds/Patchworks-NRV-cure4insect for readers to generate projections for other bird species from the raw data (habitat summaries per quarter-section for both the Patchworks and NRV scenario s), using model coefficients stored in the cure4insect package.

Figure 1. Predicted American Three-toed Woodpecker (*Picoides dorsalis*) abundance over time (year 0-50, where year 0=2016) in all 12 Forest Management Units in the Al-Pac Forest Management Agreement Area, under two scenarios: 1) the Preferred Forest Management (PFM) scenario that included harvest deferral within caribou habitats (green line); and 2) the Ecosystem-Based Management/Natural Disturbance Model (EBM) scenario without harvest deferral (blue), relative to the predicted Natural Range of Variation (NRV) in American Three-toed Woodpecker abundance in the absence of human footprint. Red line = mean predicted American Three-toed Woodpecker abundance per Forest Management Unit in the NRV scenario. Light blue dashed lines = 50 % confidence intervals for mean predicted American Three-toed Woodpecker abundance in the NRV scenario. Black dashed lines = 95 % confidence interval estimates in the NRV scenario.



Figure 2. Predicted Bay-breasted Warbler (*Setophaga castanea*) abundance over time (year 0-50, where year 0=2016) in all 12 Forest Management Units in the Al-Pac Forest Management Agreement Area, under two scenarios: 1) the Preferred Forest Management (PFM) scenario that included harvest deferral within caribou habitats (green line); and 2) the Ecosystem-Based Management/Natural Disturbance Model (EBM) scenario without harvest deferral (blue), relative to the predicted Natural Range of Variation (NRV) in Bay-breasted Warbler abundance in the absence of human footprint. Red line = mean predicted Bay-breasted Warbler abundance per Forest Management Unit in the NRV scenario. Light blue dashed lines = 50 % confidence intervals for mean predicted Bay-breasted Warbler abundance in the NRV scenario. Black dashed lines = 95 % confidence interval estimates in the NRV scenario.



Figure 3. Predicted Black-backed Woodpecker (*Picoides arcticus*) abundance over time (year 0-50, where year 0=2016) in all 12 Forest Management Units in the Al-Pac Forest Management Agreement Area, under two scenarios: 1) the Preferred Forest Management (PFM) scenario that included harvest deferral within caribou habitats (green line); and 2) the Ecosystem-Based Management/Natural Disturbance Model (EBM) scenario without harvest deferral (blue), relative to the predicted Natural Range of Variation (NRV) in Black-backed Woodpecker abundance in the absence of human footprint. Red line = mean predicted Black-backed Woodpecker abundance per Forest Management Unit in the NRV scenario. Light blue dashed lines = 50 % confidence intervals for mean predicted Black-backed Woodpecker abundance in the NRV scenario. Black dashed lines = 95 % confidence interval estimates in the NRV scenario.



Figure 4. Predicted Black-throated Green Warbler (*Setophaga virens*) abundance over time (year 0-50, where year 0=2016) in all 12 Forest Management Units in the Al-Pac Forest Management Agreement Area, under two scenarios: 1) the Preferred Forest Management (PFM) scenario that included harvest deferral within caribou habitats (green line); and 2) the Ecosystem-Based Management/Natural Disturbance Model (EBM) scenario without harvest deferral (blue), relative to the predicted Natural Range of Variation (NRV) in Black-throated Green Warbler abundance in the absence of human footprint. Red line = mean predicted Black-throated Green Warbler abundance per Forest Management Unit in the NRV scenario. Light blue dashed lines = 50 % confidence intervals for mean predicted Black-throated Green Warbler abundance in the NRV scenario. Black dashed lines = 95 % confidence interval estimates in the NRV scenario.



Figure 5. Predicted Blackpoll Warbler (*Setophaga striata*) abundance over time (year 0-50, where year 0=2016) in all 12 Forest Management Units in the Al-Pac Forest Management Agreement Area, under two scenarios: 1) the Preferred Forest Management (PFM) scenario that included harvest deferral within caribou habitats (green line); and 2) the Ecosystem-Based Management/Natural Disturbance Model (EBM) scenario without harvest deferral (blue), relative to the predicted Natural Range of Variation (NRV) in Blackpoll Warbler abundance in the absence of human footprint. Red line = mean predicted Blackpoll Warbler abundance per Forest Management Unit in the NRV scenario. Light blue dashed lines = 50 % confidence intervals for mean predicted Blackpoll Warbler abundance in the NRV scenario. Black dashed lines = 95 % confidence interval estimates in the NRV scenario.



Figure 6. Predicted Boreal Chickadee (*Poecile hudsonicus*) abundance over time (year 0-50, where year 0=2016) in all 12 Forest Management Units in the Al-Pac Forest Management Agreement Area, under two scenarios: 1) the Preferred Forest Management (PFM) scenario that included harvest deferral within caribou habitats (green line); and 2) the Ecosystem-Based Management/Natural Disturbance Model (EBM) scenario without harvest deferral (blue), relative to the predicted Natural Range of Variation (NRV) in Boreal Chickadee abundance in the absence of human footprint. Red line = mean predicted Boreal Chickadee abundance per Forest Management Unit in the NRV scenario. Light blue dashed lines = 50 % confidence intervals for mean predicted Boreal Chickadee abundance in the NRV scenario. Black dashed lines = 95 % confidence interval estimates in the NRV scenario.



Figure 7. Predicted Brown Creeper (*Certhia americanca*) abundance over time (year 0-50, where year 0=2016) in all 12 Forest Management Units in the Al-Pac Forest Management Agreement Area, under two scenarios: 1) the Preferred Forest Management (PFM) scenario that included harvest deferral within caribou habitats (green line); and 2) the Ecosystem-Based Management/Natural Disturbance Model (EBM) scenario without harvest deferral (blue), relative to the predicted Natural Range of Variation (NRV) in Brown Creeper abundance in the absence of human footprint. Red line = mean predicted Brown Creeper abundance per Forest Management Unit in the NRV scenario. Light blue dashed lines = 50 % confidence intervals for mean predicted Brown Creeper abundance in the NRV scenario. Black dashed lines = 95 % confidence interval estimates in the NRV scenario.



Figure 8. Predicted Canada Warbler (*Cardellina canadensis*) abundance over time (year 0-50, where year 0=2016) in all 12 Forest Management Units in the Al-Pac Forest Management Agreement Area, under two scenarios: 1) the Preferred Forest Management (PFM) scenario that included harvest deferral within caribou habitats (green line); and 2) the Ecosystem-Based Management/Natural Disturbance Model (EBM) scenario without harvest deferral (blue), relative to the predicted Natural Range of Variation (NRV) in Canada Warbler abundance in the absence of human footprint. Red line = mean predicted Canada Warbler abundance per Forest Management Unit in the NRV scenario. Light blue dashed lines = 50 % confidence intervals for mean predicted Canada Warbler abundance in the NRV scenario. Black dashed lines = 95 % confidence interval estimates in the NRV scenario.



Figure 9. Predicted Cape May Warbler (*Setophaga tigrina*) abundance over time (year 0-50, where year 0=2016) in all 12 Forest Management Units in the Al-Pac Forest Management Agreement Area, under two scenarios: 1) the Preferred Forest Management (PFM) scenario that included harvest deferral within caribou habitats (green line); and 2) the Ecosystem-Based Management/Natural Disturbance Model (EBM) scenario without harvest deferral (blue), relative to the predicted Natural Range of Variation (NRV) in Cape May Warbler abundance in the absence of human footprint. Red line = mean predicted Cape May Warbler abundance per Forest Management Unit in the NRV scenario. Light blue dashed lines = 50 % confidence intervals for mean predicted Cape May Warbler abundance in the NRV scenario. Black dashed lines = 95 % confidence interval estimates in the NRV scenario.



Figure 10. Predicted Evening Grosbeak (*Coccothraustes vespertinus*) abundance over time (year 0-50, where year 0=2016) in all 12 Forest Management Units in the Al-Pac Forest Management Agreement Area, under two scenarios: 1) the Preferred Forest Management (PFM) scenario that included harvest deferral within caribou habitats (green line); and 2) the Ecosystem-Based Management/Natural Disturbance Model (EBM) scenario without harvest deferral (blue), relative to the predicted Natural Range of Variation (NRV) in Evening Grosbeak abundance in the absence of human footprint. Red line = mean predicted Evening Grosbeak abundance per Forest Management Unit in the NRV scenario. Light blue dashed lines = 50 % confidence intervals for mean predicted Evening Grosbeak abundance in the NRV scenario. Black dashed lines = 95 % confidence interval estimates in the NRV scenario.



Figure 11. Predicted Northern Flicker (*Colaptes auratus*) abundance over time (year 0-50, where year 0=2016) in all 12 Forest Management Units in the Al-Pac Forest Management Agreement Area, under two scenarios: 1) the Preferred Forest Management (PFM) scenario that included harvest deferral within caribou habitats (green line); and 2) the Ecosystem-Based Management/Natural Disturbance Model (EBM) scenario without harvest deferral (blue), relative to the predicted Natural Range of Variation (NRV) in Northern Flicker abundance in the absence of human footprint. Red line = mean predicted Northern Flicker abundance per Forest Management Unit in the NRV scenario. Light blue dashed lines = 50 % confidence intervals for mean predicted Northern Flicker abundance in the NRV scenario. Black dashed lines = 95 % confidence interval estimates in the NRV scenario.



Figure 12. Predicted Olive-sided Flycatcher (*Contopus cooperi*) abundance over time (year 0-50, where year 0=2016) in all 12 Forest Management Units in the Al-Pac Forest Management Agreement Area, under two scenarios: 1) the Preferred Forest Management (PFM) scenario that included harvest deferral within caribou habitats (green line); and 2) the Ecosystem-Based Management/Natural Disturbance Model (EBM) scenario without harvest deferral (blue), relative to the predicted Natural Range of Variation (NRV) in Olive-sided Flycatcher abundance in the absence of human footprint. Red line = mean predicted Olive-sided Flycatcher abundance per Forest Management Unit in the NRV scenario. Light blue dashed lines = 50 % confidence intervals for mean predicted Olive-sided Flycatcher abundance in the NRV scenario. Black dashed lines = 95 % confidence interval estimates in the NRV scenario.



Figure 13. Predicted Ovenbird (*Seiurus aurocapillus*) abundance over time (year 0-50, where year 0=2016) in all 12 Forest Management Units in the Al-Pac Forest Management Agreement Area, under two scenarios: 1) the Preferred Forest Management (PFM) scenario that included harvest deferral within caribou habitats (green line); and 2) the Ecosystem-Based Management/Natural Disturbance Model (EBM) scenario without harvest deferral (blue), relative to the predicted Natural Range of Variation (NRV) in Ovenbird abundance in the absence of human footprint. Red line = mean predicted Ovenbird abundance per Forest Management Unit in the NRV scenario. Light blue dashed lines = 50 % confidence intervals for mean predicted Ovenbird abundance in the NRV scenario. Black dashed lines = 95 % confidence interval estimates in the NRV scenario.



Figure 14. Predicted Palm Warbler (*Setophaga palmarum*) abundance over time (year 0-50, where year 0=2016) in all 12 Forest Management Units in the Al-Pac Forest Management Agreement Area, under two scenarios: 1) the Preferred Forest Management (PFM) scenario that included harvest deferral within caribou habitats (green line); and 2) the Ecosystem-Based Management/Natural Disturbance Model (EBM) scenario without harvest deferral (blue), relative to the predicted Natural Range of Variation (NRV) in Palm Warbler abundance in the absence of human footprint. Red line = mean predicted Palm Warbler abundance per Forest Management Unit in the NRV scenario. Light blue dashed lines = 50 % confidence intervals for mean predicted Palm Warbler abundance in the NRV scenario. Black dashed lines = 95 % confidence interval estimates in the NRV scenario.



Figure 15. Predicted Pileated Woodpecker (*Dryocopus pileatus*) abundance over time (year 0-50, where year 0=2016) in all 12 Forest Management Units in the Al-Pac Forest Management Agreement Area, under two scenarios: 1) the Preferred Forest Management (PFM) scenario that included harvest deferral within caribou habitats (green line); and 2) the Ecosystem-Based Management/Natural Disturbance Model (EBM) scenario without harvest deferral (blue), relative to the predicted Natural Range of Variation (NRV) in Pileated Woodpecker abundance in the absence of human footprint. Red line = mean predicted Pileated Woodpecker abundance per Forest Management Unit in the NRV scenario. Light blue dashed lines = 50 % confidence intervals for mean predicted Pileated Woodpecker abundance in the NRV scenario. Black dashed lines = 95 % confidence interval estimates in the NRV scenario.



Figure 16. Predicted Rusty Blackbird (*Euphagus carolinus*) abundance over time (year 0-50, where year 0=2016) in all 12 Forest Management Units in the Al-Pac Forest Management Agreement Area, under two scenarios: 1) the Preferred Forest Management (PFM) scenario that included harvest deferral within caribou habitats (green line); and 2) the Ecosystem-Based Management/Natural Disturbance Model (EBM) scenario without harvest deferral (blue), relative to the predicted Natural Range of Variation (NRV) in Rusty Blackbird abundance in the absence of human footprint. Red line = mean predicted Rusty Blackbird abundance per Forest Management Unit in the NRV scenario. Light blue dashed lines = 50 % confidence intervals for mean predicted Rusty Blackbird abundance in the NRV scenario. Black dashed lines = 95 % confidence interval estimates in the NRV scenario.



Figure 17. Predicted Western Tanager (*Piranga ludoviciana*) abundance over time (year 0-50, where year 0=2016) in all 12 Forest Management Units in the Al-Pac Forest Management Agreement Area, under two scenarios: 1) the Preferred Forest Management (PFM) scenario that included harvest deferral within caribou habitats (green line); and 2) the Ecosystem-Based Management/Natural Disturbance Model (EBM) scenario without harvest deferral (blue), relative to the predicted Natural Range of Variation (NRV) in Western Tanager abundance in the absence of human footprint. Red line = mean predicted Western Tanager abundance per Forest Management Unit in the NRV scenario. Light blue dashed lines = 50 % confidence intervals for mean predicted Western Tanager abundance in the NRV scenario. Black dashed lines = 95 % confidence interval estimates in the NRV scenario.



Figure 18. Predicted Western Wood-pewee (*Contopus sordidulus*) abundance over time (year 0-50, where year 0=2016) in all 12 Forest Management Units in the Al-Pac Forest Management Agreement Area, under two scenarios: 1) the Preferred Forest Management (PFM) scenario that included harvest deferral within caribou habitats (green line); and 2) the Ecosystem-Based Management/Natural Disturbance Model (EBM) scenario without harvest deferral (blue), relative to the predicted Natural Range of Variation (NRV) in Western Wood-pewee abundance in the absence of human footprint. Red line = mean predicted Western Wood-pewee abundance per Forest Management Unit in the NRV scenario. Light blue dashed lines = 50 % confidence intervals for mean predicted Western Wood-pewee abundance in the NRV scenario. Black dashed lines = 95 % confidence interval estimates in the NRV scenario.



Figure 19. Predicted White-winged Crossbill (*Loxia leucoptera*) abundance over time (year 0-50, where year 0=2016) in all 12 Forest Management Units in the Al-Pac Forest Management Agreement Area, under two scenarios: 1) the Preferred Forest Management (PFM) scenario that included harvest deferral within caribou habitats (green line); and 2) the Ecosystem-Based Management/Natural Disturbance Model (EBM) scenario without harvest deferral (blue), relative to the predicted Natural Range of Variation (NRV) in White-winged Crossbill abundance in the absence of human footprint. Red line = mean predicted White-winged Crossbill abundance per Forest Management Unit in the NRV scenario. Light blue dashed lines = 50 % confidence intervals for mean predicted White-winged Crossbill abundance in the NRV scenario. Black dashed lines = 95 % confidence interval estimates in the NRV scenario.



Figure 20. Predicted Yellow-bellied Sapsucker (*Sphyrapicus varius*) abundance over time (year 0-50, where year 0=2016) in all 12 Forest Management Units in the Al-Pac Forest Management Agreement Area, under two scenarios: 1) the Preferred Forest Management (PFM) scenario that included harvest deferral within caribou habitats (green line); and 2) the Ecosystem-Based Management/Natural Disturbance Model (EBM) scenario without harvest deferral (blue), relative to the predicted Natural Range of Variation (NRV) in Yellow-bellied Sapsucker abundance in the absence of human footprint. Red line = mean predicted Yellow-bellied Sapsucker abundance per Forest Management Unit in the NRV scenario. Light blue dashed lines = 50 % confidence intervals for mean predicted Yellow-bellied Sapsucker abundance in the NRV scenario. Black dashed lines = 95 % confidence interval estimates in the NRV scenario.

