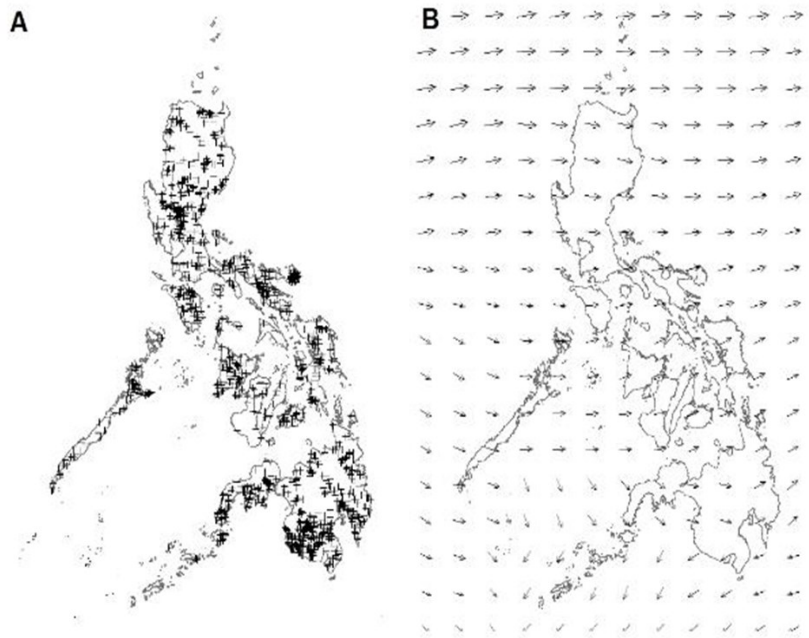
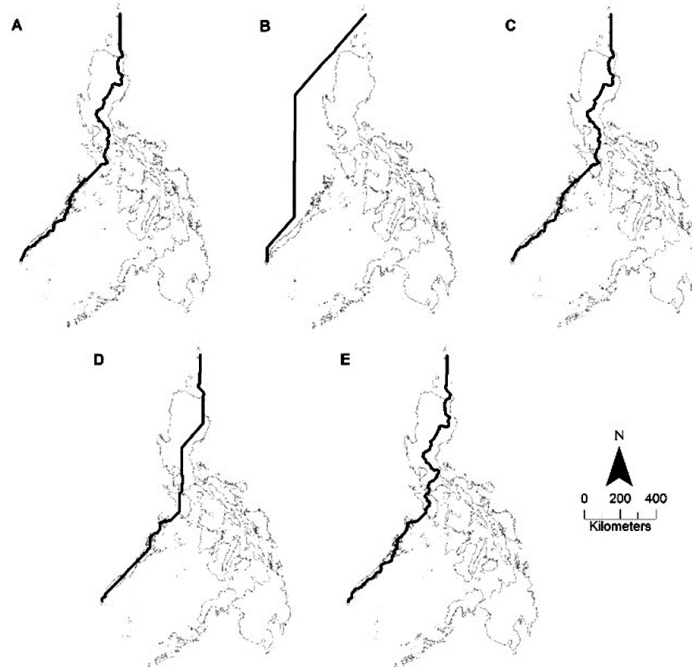


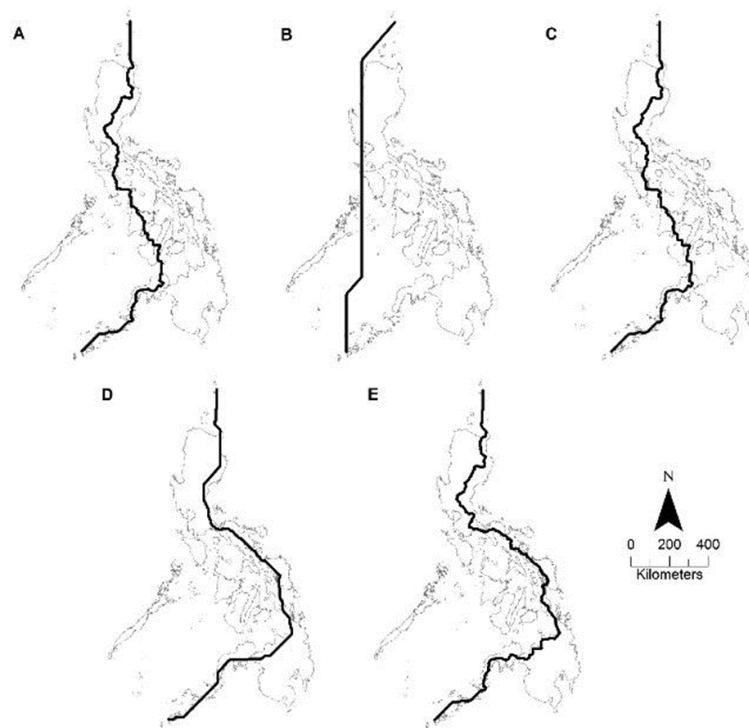
SUPPLEMENTARY DATA



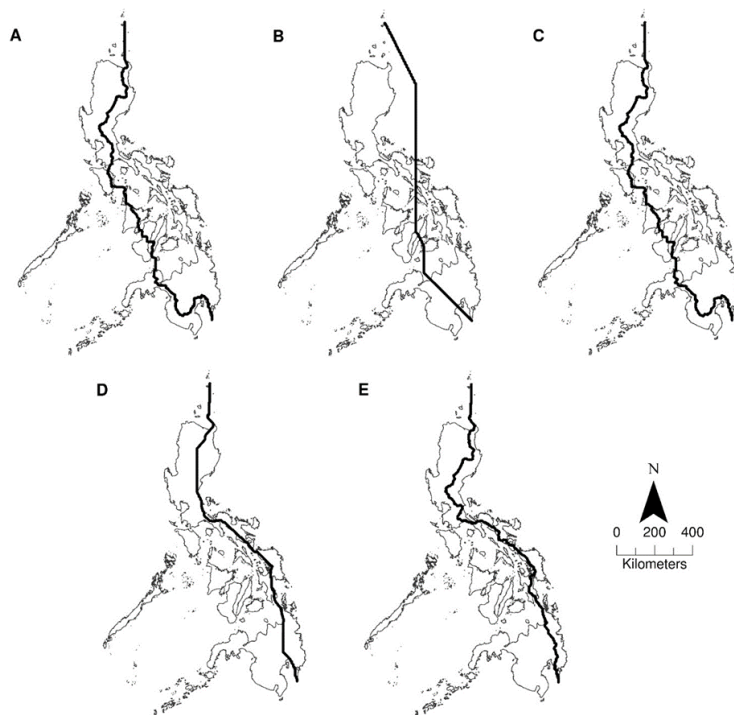
Supplementary Figure 1. The migratory routes were modelled based on cost of movement between (A) potential stopover sites as influenced by (B) October wind conditions and avoidance of over-water travel (not shown in Fig.). (A) Stopover sites (—) were represented by 6,567 1 km-grid edges shared between a rice field and a wooded area (e.g. closed-canopy forest and plantations). (B) Long-term mean October wind speed (length) and direction (arrow) was averaged from 1983-2005 [60].



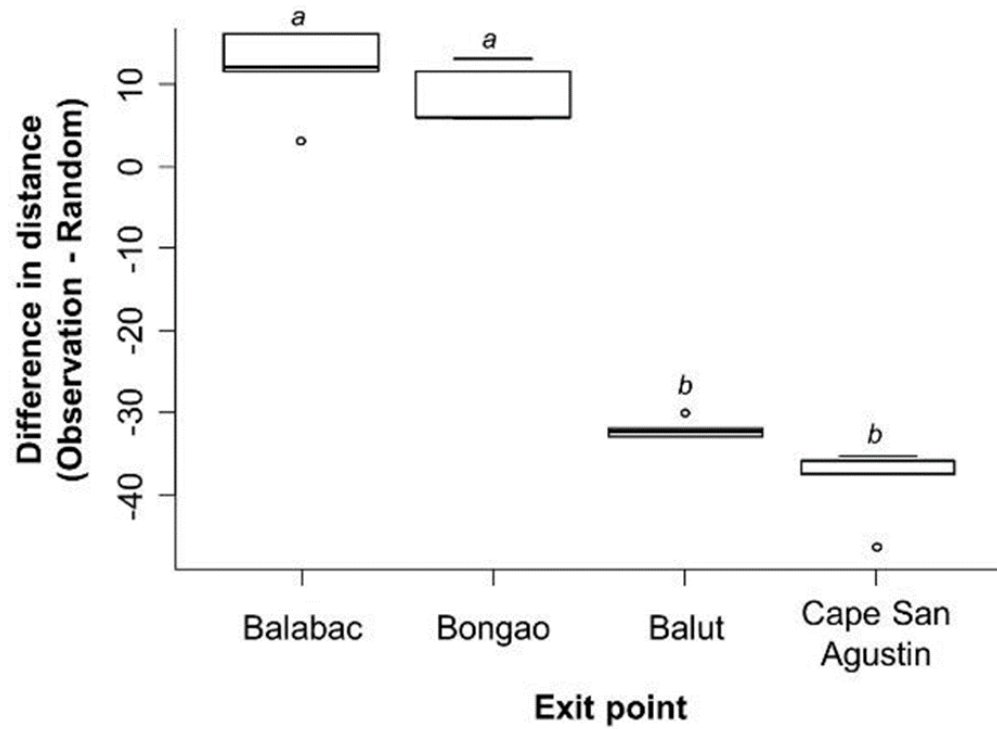
Supplementary Figure 2. The five migratory routes leading to Balabac modeled using (A) costs of moving between stopover sites only (1,923 km); (B) cost of wind direction only (1,582 km); (C) combined costs of stopover distances and wind direction (1,923 km); (D) combined costs of wind direction and over-water travel (1,662 km); and (E) combined costs of distances between stopover sites, costs of wind direction and over-water travel (2,011 km).



Supplementary Figure 3. The five migratory routes leading to Bongao modeled using (A) costs of moving between stopover sites only (2,527 km); (B) cost of wind direction only (1,798 km); (C) combined costs of stopover distances and wind direction (2,517 km); (D) combined costs of wind direction and over-water travel (2,419 km); and (E) combined costs of distances between stopover sites, costs of wind direction and over-water travel (2,970 km).



Supplementary Figure 4. The five migratory routes leading to Cape San Agustin modeled using (A) costs of moving between stopover sites only (2,536 km); (B) cost of wind direction only (1,750 km); (C) combined costs of stopover distances and wind direction (2,535 km); (D) combined costs of wind direction and over-water travel (1,900 km); and (E) combined costs of distances between stopover sites, costs of wind direction and over-water travel (2,355 km).



Supplementary Figure 5. Difference in distances of observation points and random points to modelled routes grouped according to exit point. There are 5 modelled routes for each exit point. When observation points are closer on average to the routes, the difference is positive. When observation points are farther on average to the routes, the difference is negative.