

Shorebirds and highly pathogenic avian influenza (H5N1): considerations for monitoring in Alaska

Robert Gill
U.S. Geological Survey

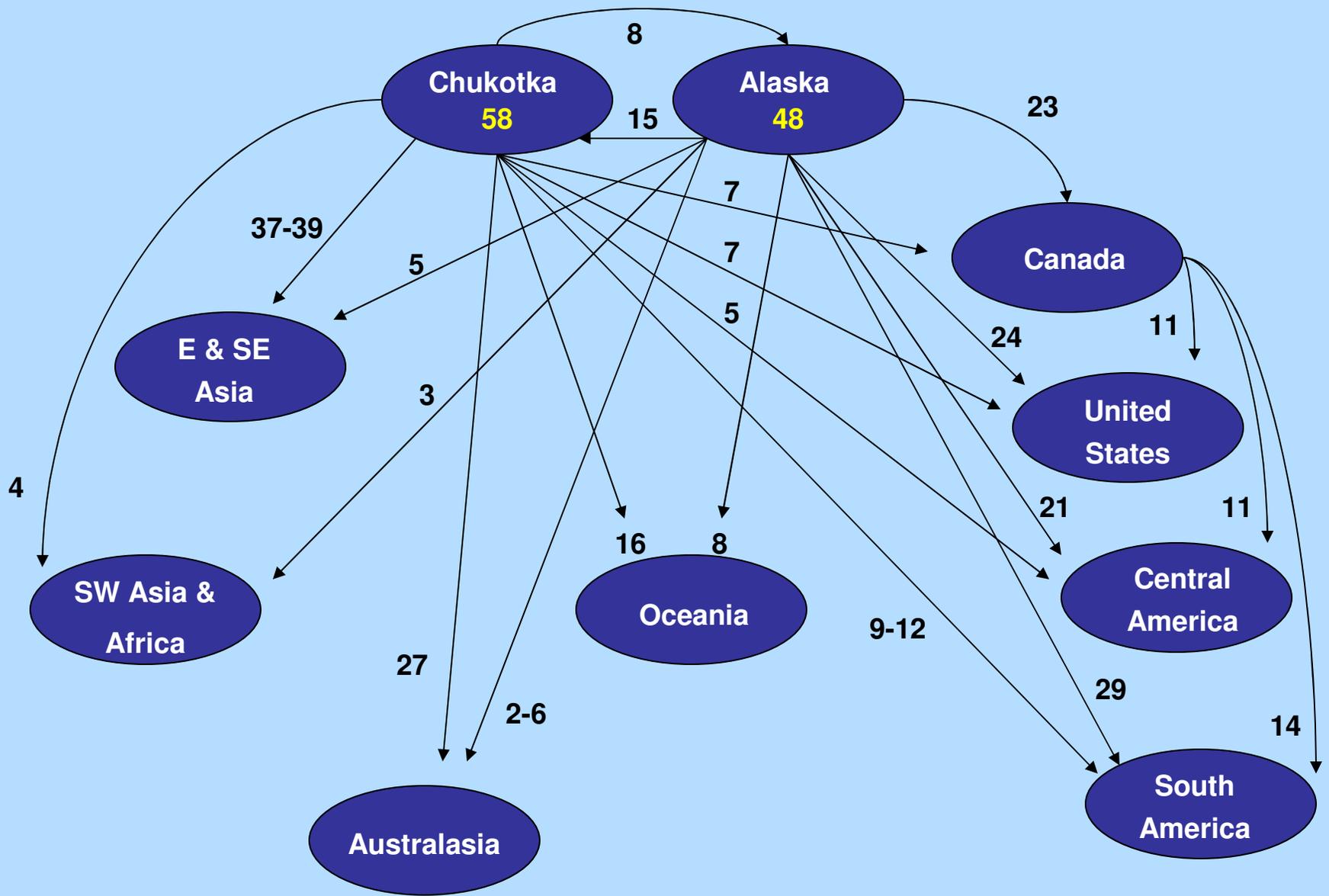
and

Richard Lanctot
U.S. Fish & Wildlife Service

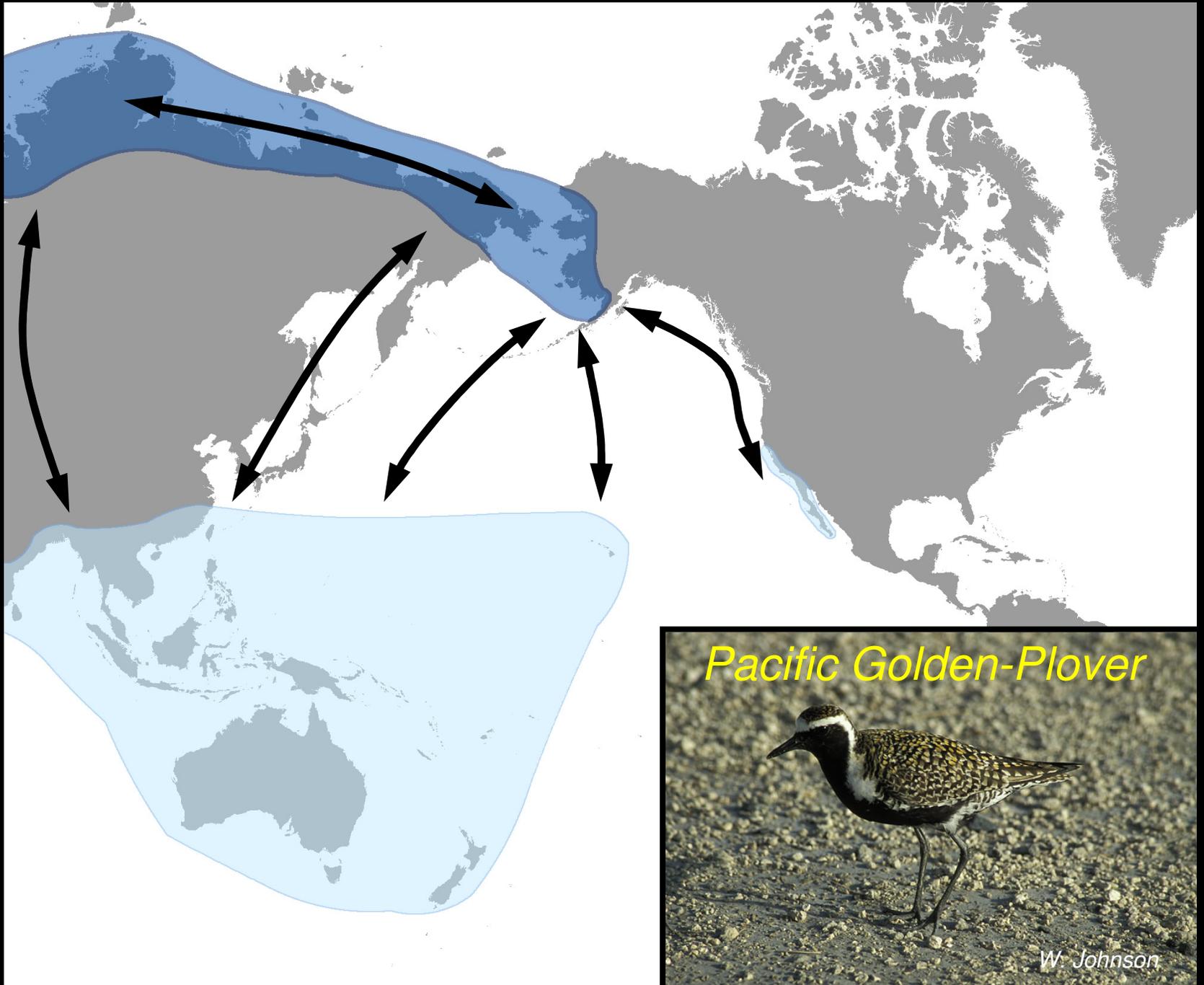


Pan-Beringian shorebirds as potential carriers of Asian H5N1 subtype to North America. Bold denotes “high priority” species with major Asia-Alaska interchange.

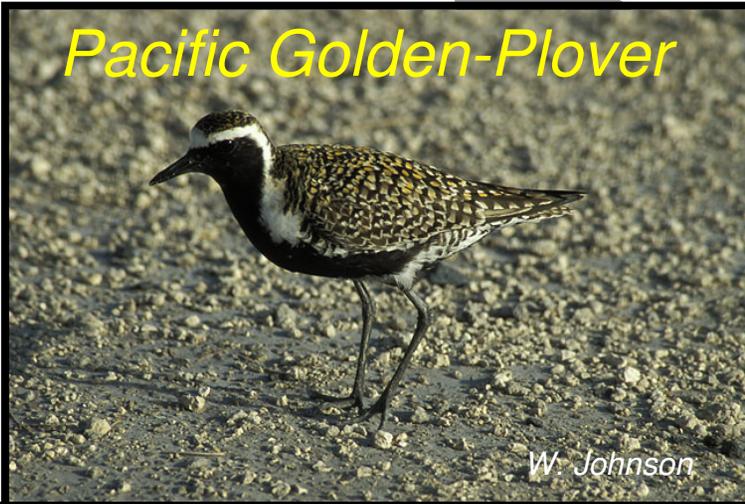
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- **Pacific Golden-Plover**
 - Black-bellied Plover
 - Semipalmated Plover
 - **Bar-tailed Godwit**
 - Wandering Tattler
 - **Ruddy Turnstone**
 - **Long-billed Dowitcher**
 - **Red Knot**
 - Sanderling
 - Western Sandpiper
 - Red-necked Stint
 - **Pectoral Sandpiper**
 - **Sharp-tailed Sandpiper**
 - **Rock Sandpiper**
 - **Dunlin**
 - **Buff-breasted Sandpiper**



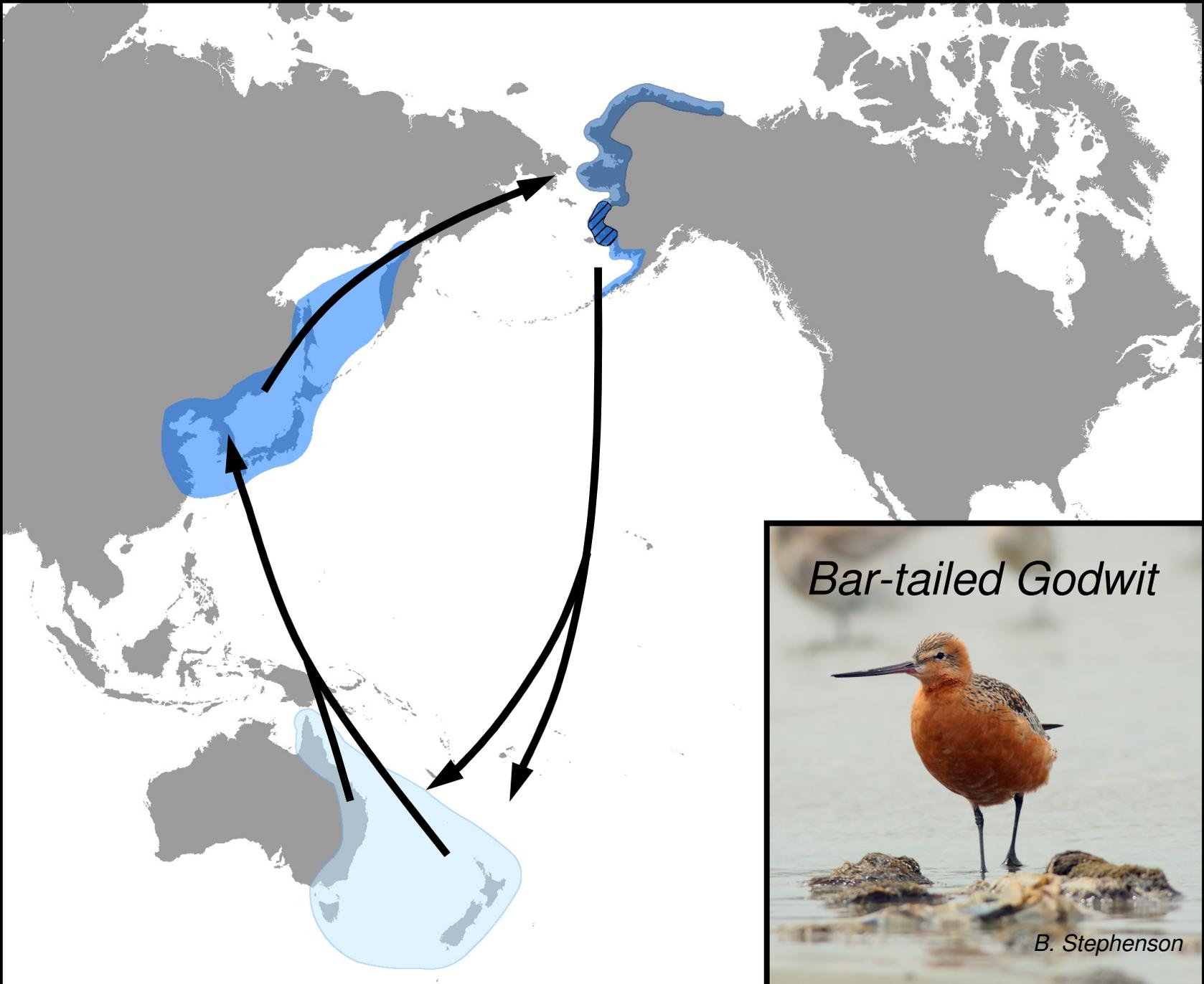
Post-breeding dispersal of North Pacific shorebirds



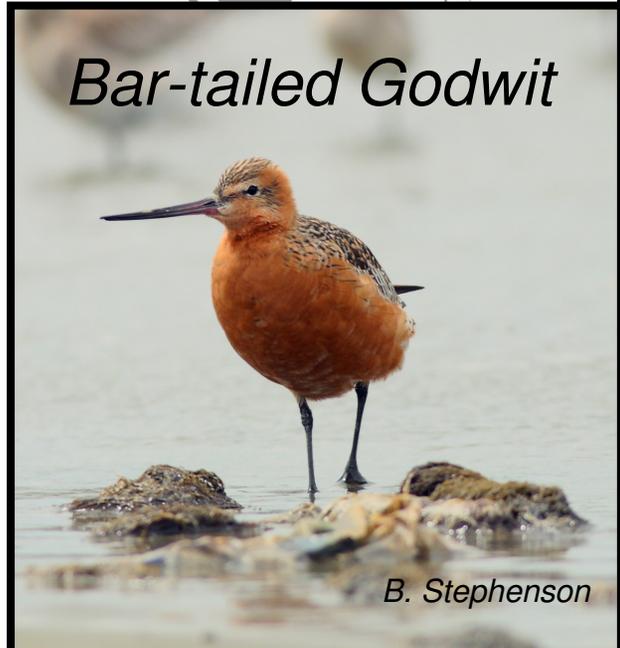
Pacific Golden-Plover



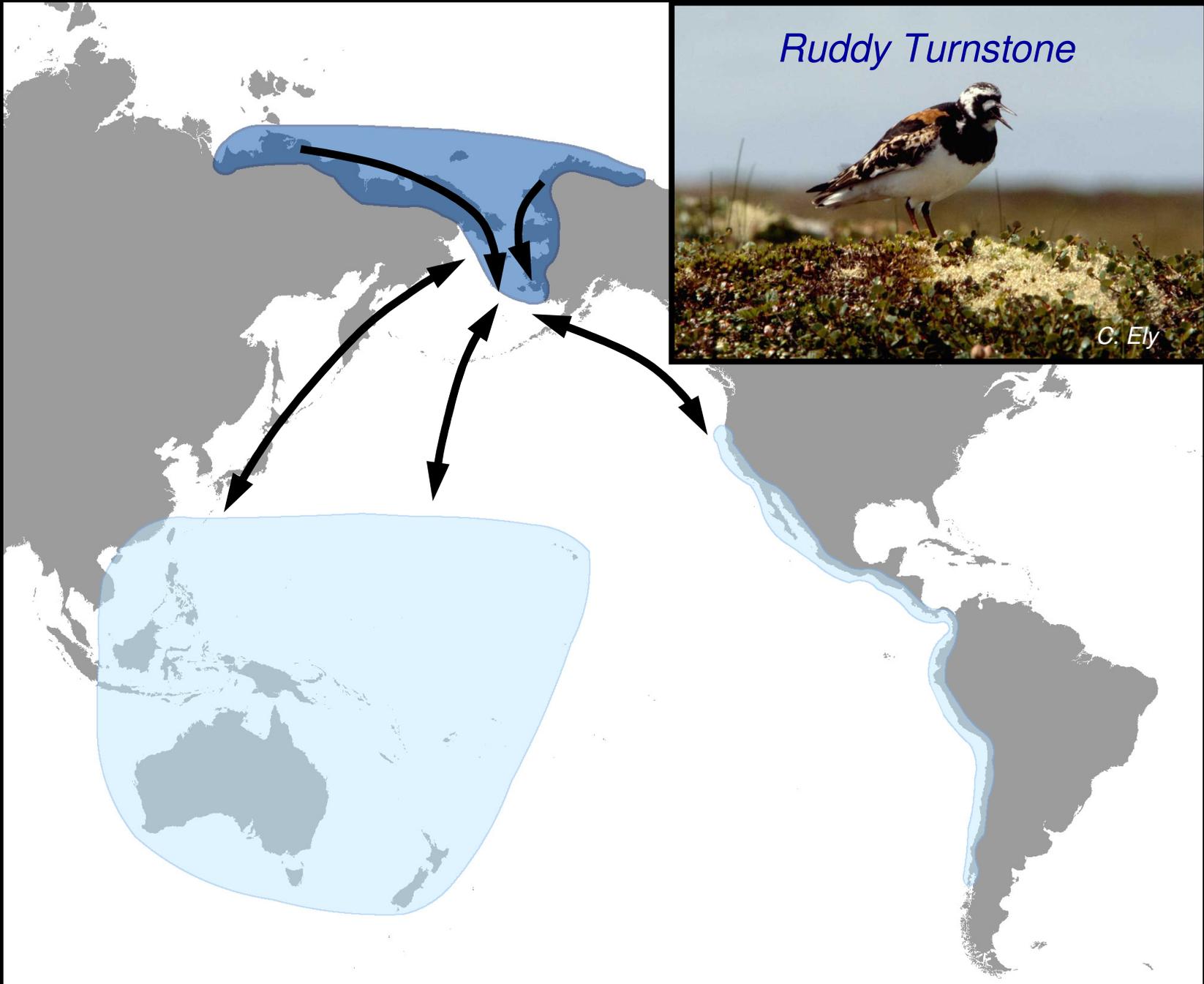
W. Johnson

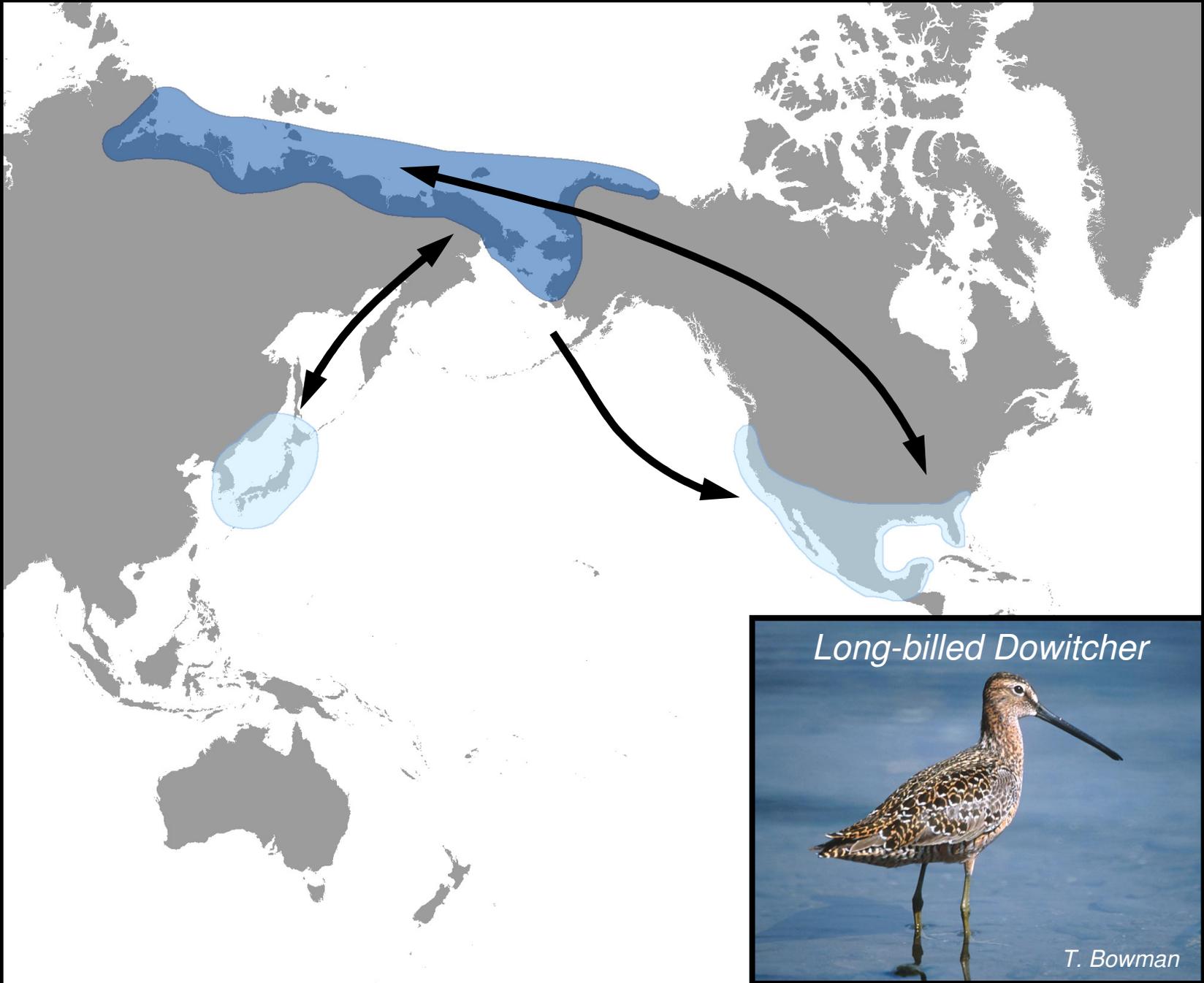


Bar-tailed Godwit



B. Stephenson

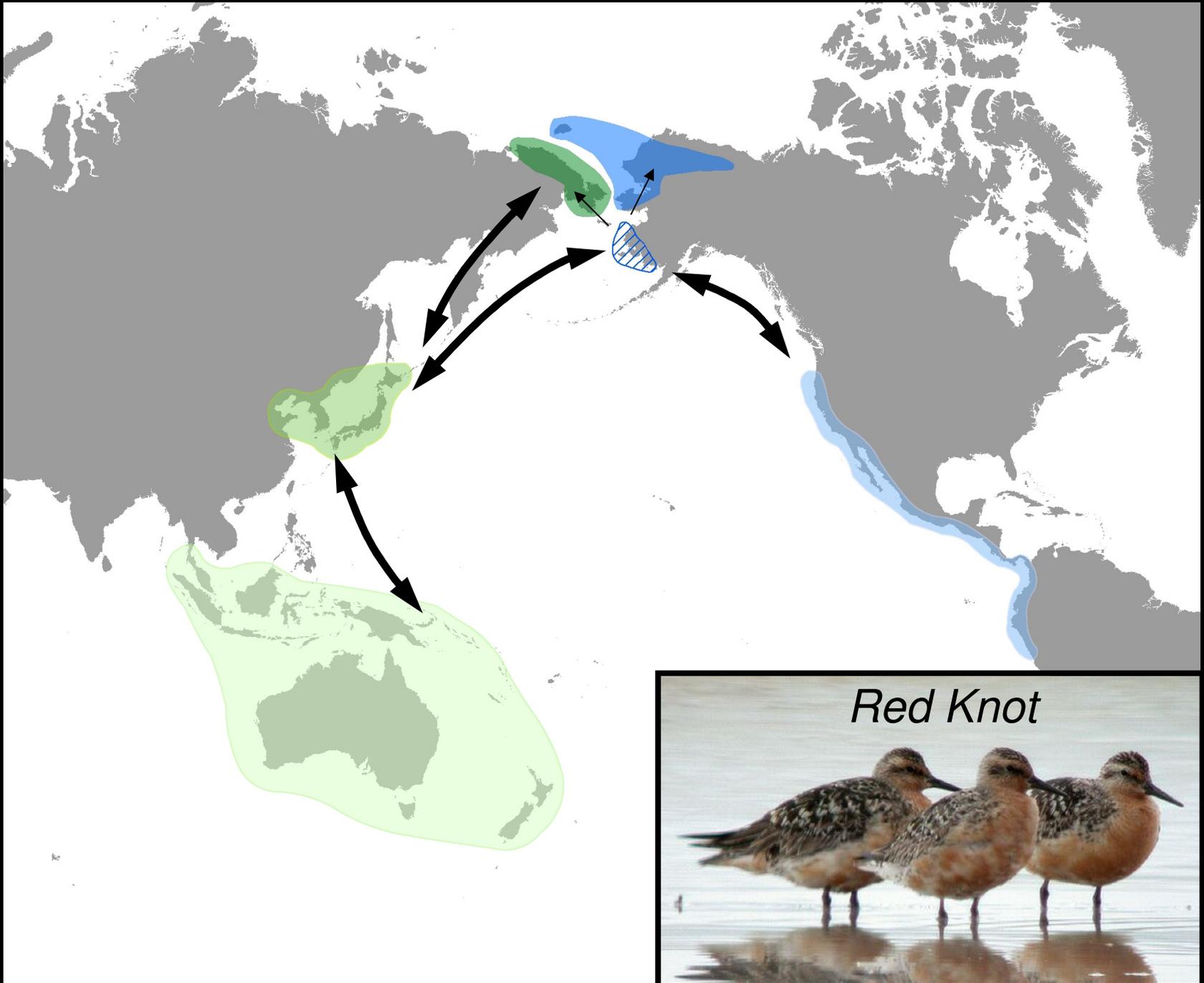




Long-billed Dowitcher

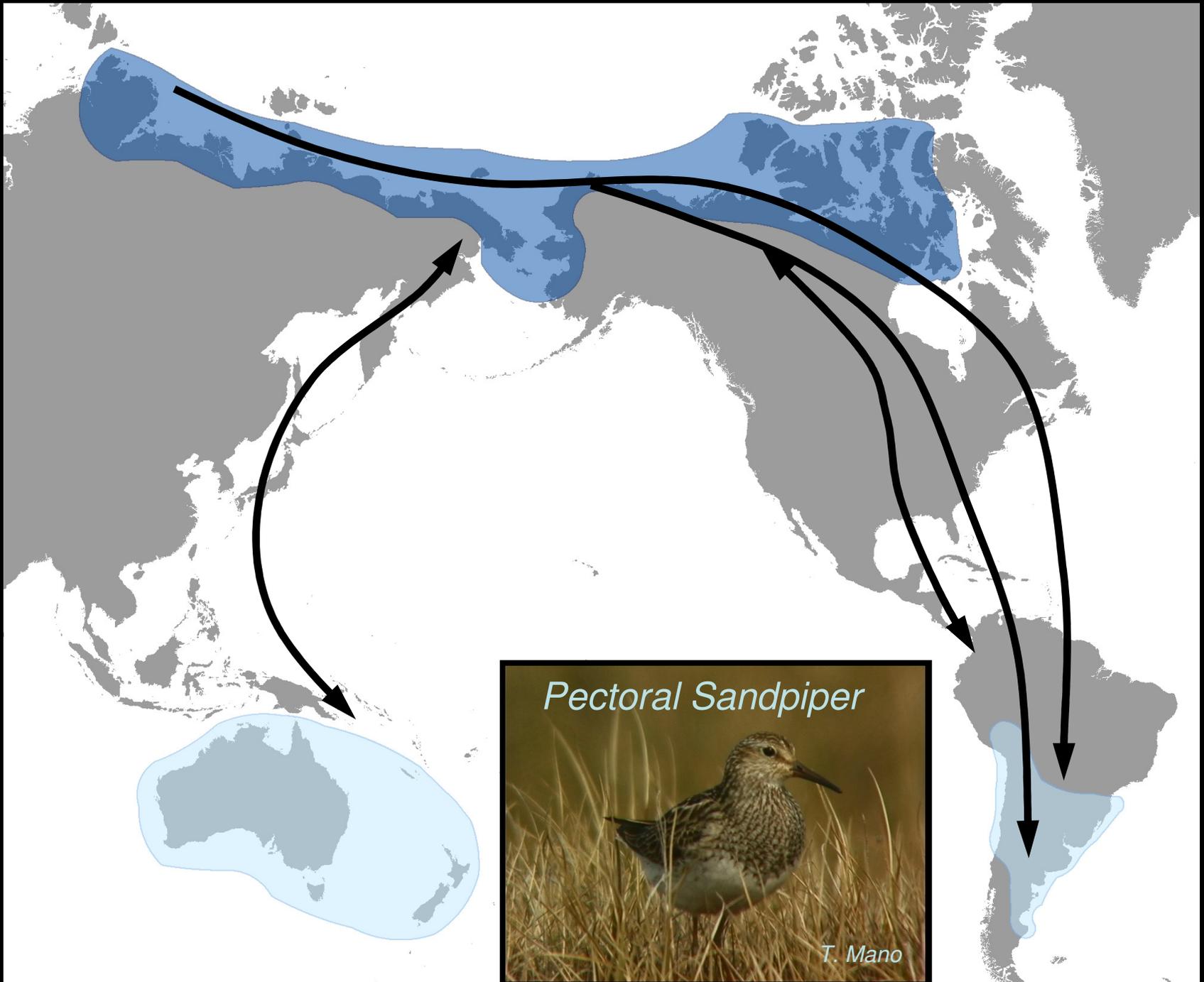


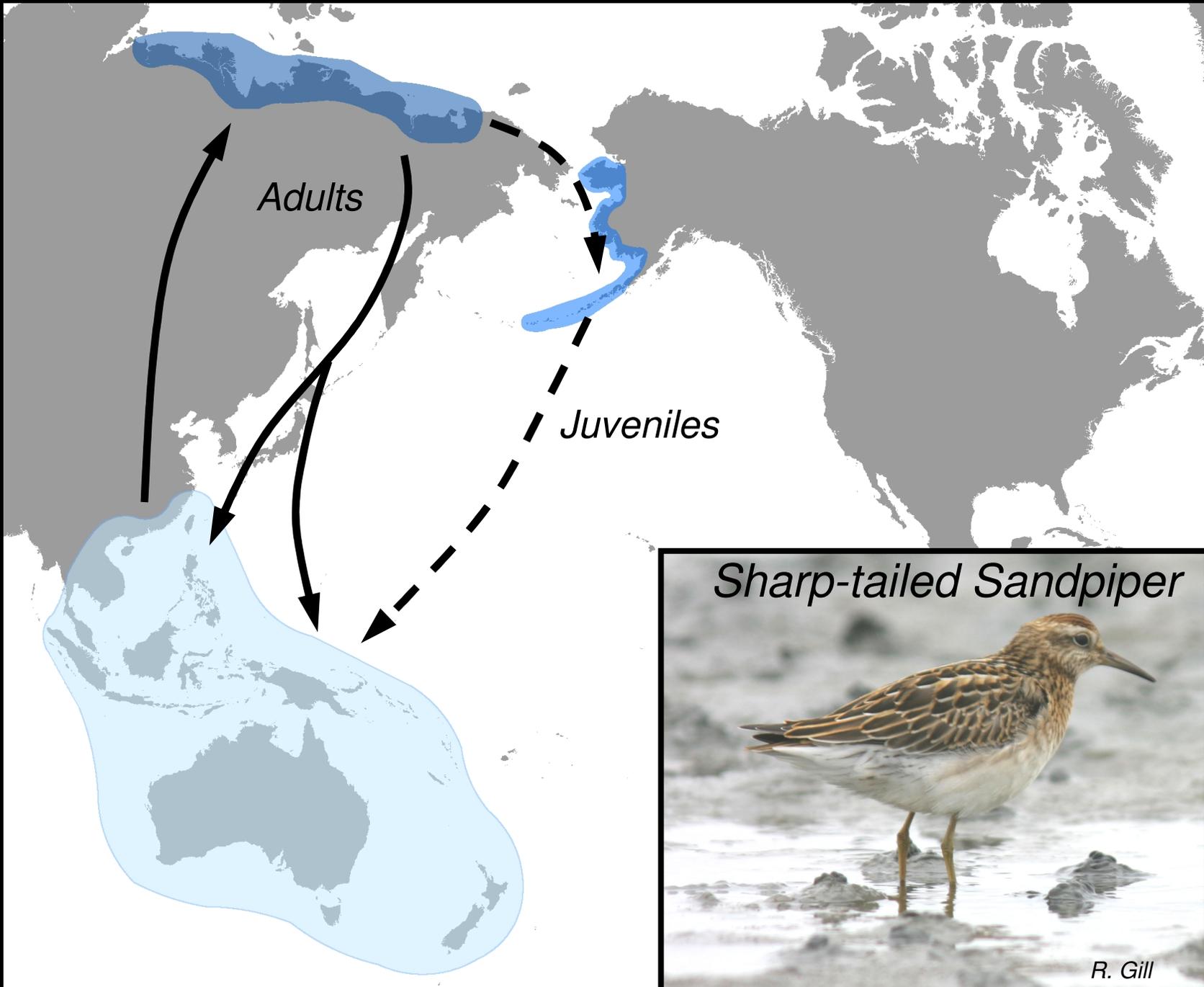
T. Bowman

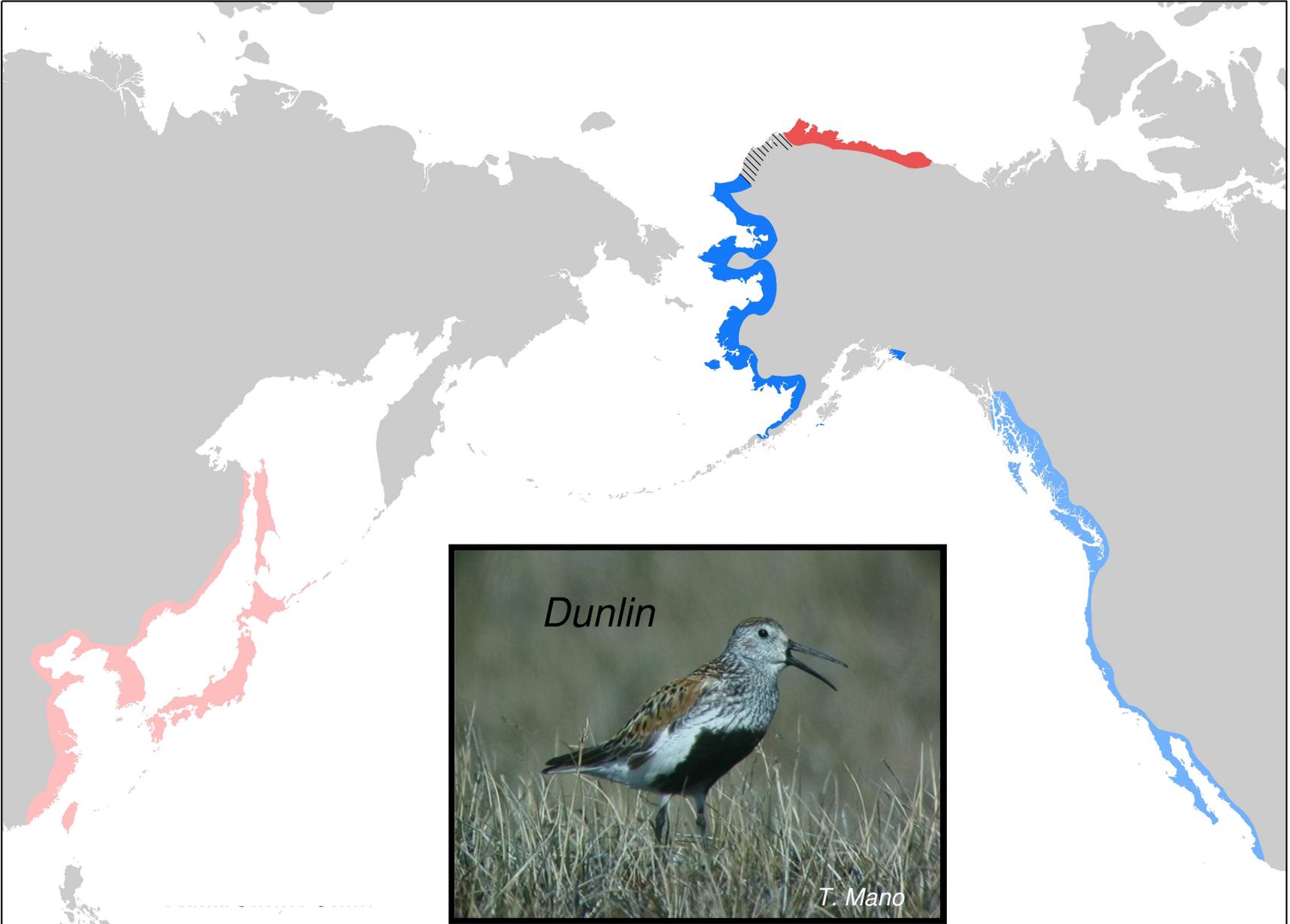


Red Knot









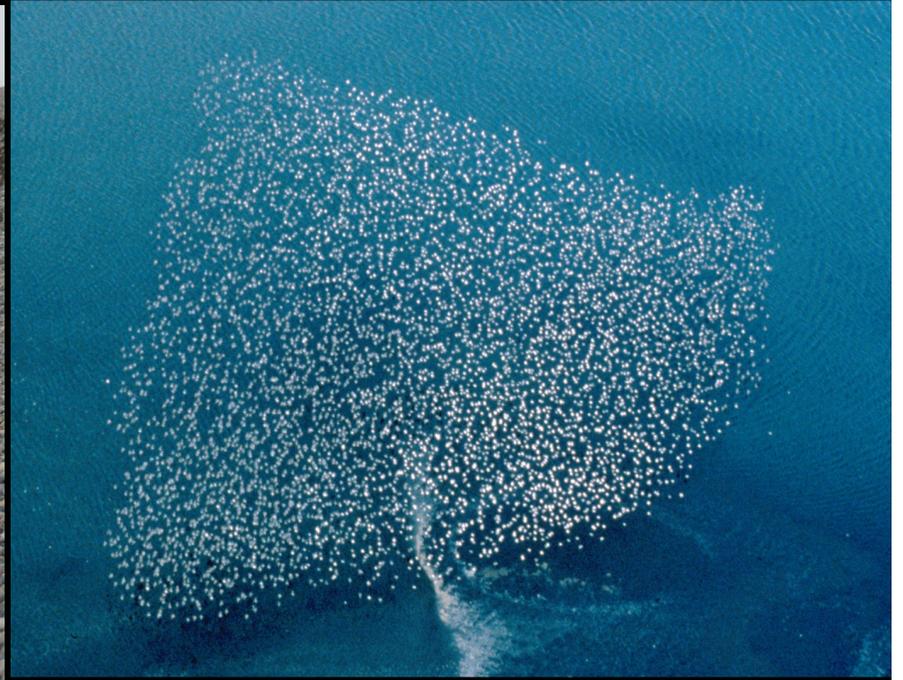
Dunlin

T. Mano

Things to ponder from a virologist's standpoint

HIGH RISK OF EXPOSURE/TRANSMISSION

- Most highly social & occur in dense aggregations outside of breeding season
- Mixed species assemblages (shorebirds & waterfowl) common
- Prolonged use of sites during passage
- Major staging areas used by birds going to different flyways
- Migration routes elliptical or seasonally different



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Mixed species assemblages common in shorebirds

R. Gill

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Things to ponder from a virologist's standpoint

FIDELITY TO SITES VARIES BY SPECIES AND SEASON

- Mixed mating systems with varying degrees of site and mate fidelity
- Most birds faithful to sites throughout annual cycle
- Breeding sites linked to broad geographic wintering areas
 - ✓ (i.e., separate vacations during winter)

Things to ponder from a virologist's standpoint

SUSCEPTIBILITY TO INFECTION UNCERTAIN

- Most birds use marine habitats during nonbreeding season but brackish or freshwater habitats during breeding season
- Most arctic-nesting spp. have low immunocompetence
- Breeding and molt are stressful periods