

A long-term database on raptor migration at Hawk Mountain Sanctuary, northeastern United States

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Abstract. In most northern temperate regions diurnal birds of prey, or raptors, migrate seasonally between their breeding and wintering grounds. Although their populations can be logistically difficult to survey and monitor because the birds are largely secretive and wide-ranging, most raptors are obligate or facultative soaring migrants that congregate along major thermal and orographic updraft corridors during their seasonal movements. Hawk Mountain Sanctuary (41° N, 75° W), which straddles the Kittatinny Ridge, the southernmost ridge in the Appalachian Mountains in eastern Pennsylvania, witnesses large numbers of migrating raptors during autumn migration. The Sanctuary's long-term migration-count database is the oldest detailed archive on the timing and magnitude of migratory raptors in the world. Records comprise daily (1934–1965) or hourly (1966–present) counts of 18 North American species of raptors migrating past the Sanctuary, as well as detailed weather data recorded from the lookout during autumn migration (from 15 August to 15 December). The long-term data set has been valuable in understanding raptor migration and population trends. Because top predators such as raptors are sensitive bio-indicators of ecosystem changes, variations in the numbers of individual species also may reflect changes in the health of the environment. Thus, monitoring population trends of raptors can provide crucial information on environmental changes and threats facing wildlife species. Indeed, the Sanctuary's database has been key in identifying the now well-known example of organochlorine contamination of top predators and has helped the conservation, management, and reintroduction of many species such as Osprey (*Pandion haliaetus*), Bald Eagle (*Haliaeetus leucocephalus*), and Peregrine Falcon (*Falco peregrinus*). This database is of prime significance to conservation ecology and long-term fluctuations in numbers of migratory birds.

Key words: bird counts; bird migration; Hawk Mountain Sanctuary; long-term studies; Pennsylvania (USA); population census; raptor.

The complete data sets corresponding to abstracts published in the Data Papers section of the journal are published electronically in *Ecological Archives* at (<http://esapubs.org/archive>). (The accession number for each Data Paper is given directly beneath the title.)