

MASS MORTALITIES OF EUROPEAN STARLINGS FROM COLLISIONS WITH MOTOR VEHICLES

Ward B. Stone, Kevin Hynes, and Joseph C. Okoniewski

New York State Department of Environmental Conservation
Wildlife Pathology Unit, 108 Game Farm Road, Delmar, NY 12054

ABSTRACT

Between 1993 and 2000, six mass mortalities of European Starlings (*Sturnus vulgaris*) along roadways in New York State were determined to have been caused by impacts with motor vehicles. The unusual flight behavior of starling flocks is suspected to be a contributing factor.

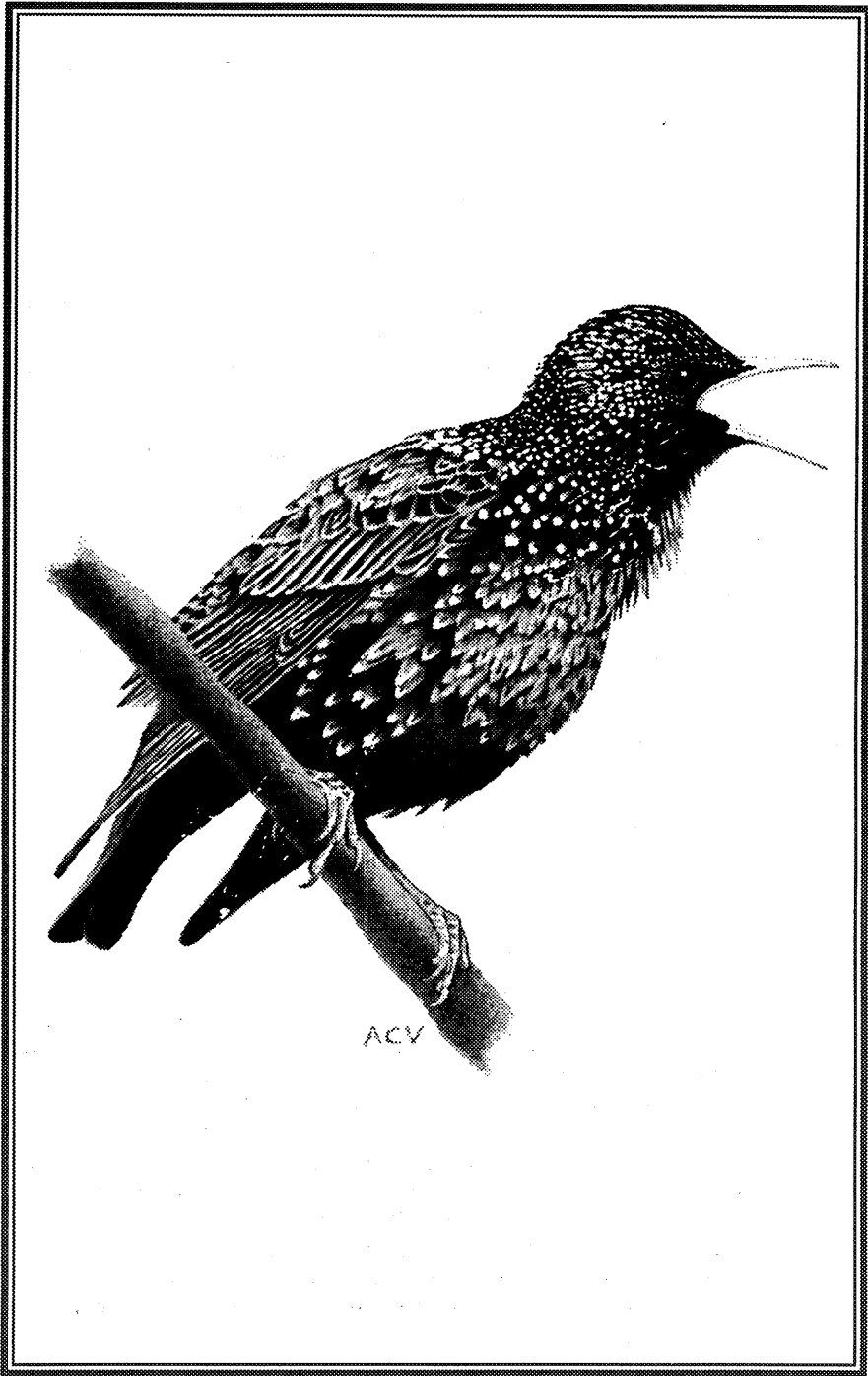
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The flight maneuvers of large flocks of European Starlings (*Sturnus vulgaris*) are described by Bent (1950) as "...most remarkable...as they wheel, turn and swing into fantastic formations with remarkable precision, with no apparent leader...". The purpose or function of this flock behavior is unknown although it may include protection from avian predators (Wynne - Edwards 1929). The spectacular flight maneuvers may, however, predispose starlings to certain types of accidental trauma such as collisions with motor vehicles. Between 1993 and 2001, in the course of our responsibilities for the diagnosis of morbidity and mortality of wildlife in New York State, we examined starlings from six incidents where tight flocks of *S. vulgaris* were intercepted by motor vehicles.

FINDINGS

The cases occurred across New York State, from Long Island to Niagara Falls (**Table 1**). The numbers of birds killed ranged from about 20 to over 100. Four of the cases occurred along heavily traveled highways where speed limits were 55 mph (89 km/h), one incident transpired on a village boulevard, and one took place along a rural secondary road not suited for high speeds. In four instances, the birds were found dead by the individuals reporting or submitting them for examination. The vehicle collision diagnoses in these cases were inferred from the nature of the trauma observed at necropsy in conjunction with carcass recovery on or adjacent to roads. Typical post-mortem evidence of high-speed collision included fractures, tears of the liver, and variable hemorrhage.

Eye-witness accounts were available for two cases. In the first (Monroe County), a large flock of starlings was observed "swooping around" prior to colliding with an automobile traveling about 60 mph (97 km/h). The vehicle sustained a broken parking light, a damaged windshield wiper, and the loss of a hood ornament. Newspaper coverage of this case elicited a claim by a driver of a Jeep Cherokee to have struck 50-75 starlings on another highway in the Rochester vicinity earlier that month.



The second eye-witness account accompanied the Albany County incident in December 2000. The driver of an emergency medical vehicle reported driving slowly (10-15 mph) on a rural secondary road when he approached a flock of starlings perched in roadside trees. The starlings rose into the air and performed what was described as a figure eight pattern at the end of which a portion of the middle of the flock struck the vehicle head-on.

In addition to these New York cases, we examined two starlings out of an estimated 40 starlings and Common Grackles (*Quiscalus quiscula*) found dead at a highway overpass in Connecticut (Merritt Parkway, Exit 68) in March 1998. Necropsy findings for both birds were consistent with high-speed impact.

DISCUSSION

Collisions between motor vehicles and flocks of starlings attract more public attention than do collisions between vehicles and individual passerines. Some people are reluctant to believe that a large number of dead birds can be attributed to a single vehicle impact. In two of the New York cases and the Connecticut incident, poisoning was suspected by the submitting parties. In six of the cases we investigated, a pooled sample of alimentary canal contents was analyzed for organophosphate and carbamate pesticides occasionally used to intentionally poison birds. No pesticides were detected.

The sequence of events related to these flock-vehicle collisions is no doubt more complex than collisions involving single birds. Individuals in a flock are reacting not only to their own interpretation of the physical environment, but also to the position of neighboring flock members (Potts 1984). As one of the eye-witness accounts suggests, it would seem likely that vehicles intercept the main body of the flock where evasive flight maneuvers may be constrained by the flight paths of their neighbors.

The birds in the Niagara County incident were found beneath a bridge, and those in the Connecticut case were found at an overpass. In these instances, it is possible that the bridge/ overpass structures may have temporarily blocked the birds' view of traffic and/or may have channeled the movements of the flocks in some manner. The Niagara County incident may have been additionally complicated by fog conditions.

We suspect incidents such as we report here are not rare. The literature record concerning such events, however, is apparently sparse. The only report we found that specifically addressed this topic (NWHC, 2000) briefly described an incident in which 200-250 starlings "rained down" on traffic during rush hour on a highway in Maryland.

LITERATURE CITED

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Table 1. Incidents of mass mortality of European Starlings caused by collisions of flocks with motor vehicles on highways in New York 1993-2001.

County	Date	No. Killed	Ingesta
Niagara	12/93	>100	none
Dutchess	12/96	20±	cedar fruit (<i>Juniperus sp.</i>)
Monroe	2/98	>139	grapes (<i>Vitus sp.</i>)
Albany	12/00	>69	grapes (<i>Vitus sp.</i>)
Livingston	12/00	55	cedar fruit (<i>Juniperus sp.</i>)
Suffolk	2/01	50-60	seed/grain fragments

