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Author: Hartup, Barry K.

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Rehabilitation of Native Reptiles and Amphibians in DuPage County, Illinois

Barry K. Hartup, Willowbrook Wildlife Center, Forest Preserve District of DuPage County, Glen Ellyn, Illinois 60137, USA

ABSTRACT: Between 1980 and 1994, 586 individuals of 20 native reptile and amphibian species were evaluated at a wildlife rehabilitation facility in DuPage County, Illinois (USA). On examination, 48% of reptiles and 52% of amphibians were injured, and 2% of each class were diseased; remaining animals were uninjured. The most frequent causes of injury to reptiles were automobile collisions (55%), ingestion of fishing tackle (19%), and domestic animal attacks (8%). Automobile collisions (38%), lawn and garden accidents (33%), and pet collection (19%) were the most frequent causes of injury to amphibians. We released 354 reptiles and 54 amphibians into appropriate habitat available in local forest preserves, representing case release prevalences of 84% and 68% for each class, respectively.

Key words: Reptiles and amphibians, rehabilitation, morbidity, mortality, translocation.

Rehabilitation of reptiles and amphibians is a growing part of the field of wildlife rehabilitation (Kaplan, 1993; Heinrich and Heinrich, 1986; Moriarty, 1985). The transfer of equipment and techniques from herpetologists, pet enthusiasts, and veterinarians has raised awareness and professional standards within the rehabilitation community. However, little documentation exists for these programs other than scant yearly admission totals and disposition statistics provided to state permitting agencies. Such information may represent an important addition to the understanding of morbidity and mortality in reptile and amphibian populations and a potential indicator of ecosystem health, especially in urban communities.

In this report, I provide a comprehensive review of native reptile and amphibian admissions to Willowbrook Wildlife Center (WWC), a large wildlife rehabilitation facility located in west suburban Chicago, Illinois (USA) (41°87′N, 88°08′W). The goals of this review were to summarize the herpetofauna caseload at WWC, identify risk factors, assess treatment and release protocols, and develop preventive measures against human-caused injury and mortality to native reptiles and amphibians of DuPage County.

Information collected from medical records included species, sex, age, date of admission, township where found, status (injured, diseased or uninjured), probable cause of injury, weight, body condition, primary diagnosis, treatment provided, case outcome, and release month and site.

Between 1980 and 1994, 489 reptile and 97 amphibian cases of 20 species native to DuPage County were admitted to WWC (Table 1). The 20 species represent 71% of the 28 extant native reptile and amphibian species reported for the county (Ludwig et al., 1992). The mean (±SE) annual reptile and amphibian caseloads were 32.6 (±3.6) and 6.5 (±1.1), respectively. Of 380 age-classified reptiles, 240 (63%) were adults, 65 (17%) were juveniles, and 75 (20%) were hatchlings. All amphibian admissions were classified as adults; no larval or tadpole amphibian forms were presented.

Sixty percent of 97 amphibian and 81% of 489 reptile cases were presented to WWC between the months of May and September (Fig. 1). This observation is consistent with our hypothesis that increased reptile and amphibian activity and dispersal during the spring and summer in northeastern Illinois conflicts more with outdoor human activity and automobile traffic than in other times of the year, and thus results in more frequent admissions.

Reptile and amphibian presenting histories, probable causes of injury and medical diagnoses were similar. Of 465 reptile records with historical information, injuries were described in 226 (48%), and sus-

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TABLE 1. Native reptile and amphibian species presented to Willowbrook Wildlife Center, 1980 to 1994.

Species	Number of animals
Painted turtle (*Chrysemys picta*)	163
Common snapping turtle (*Chelydra serpentina*)	124
Eastern spiny softshell turtle (*Apalone spinifera spinifera*)	14
Blanding's turtle (*Emydoidea blandingii*)	13
Western fox snake (*Elaphe vulpina vulpina*)	78
Eastern garter snake (*Thamnophis sirtalis sirtalis*)	72
Other[a]	25
Total reptiles	489
Eastern american toad (*Bufo americanus americanus*)	40
Bullfrog (*Rana catesbeiana*)	28
Other[b]	29
Total amphibians	97

[a] Includes eight common map turtles (*Graptemys geographica*), one stinkpot (*Sternotherus odoratus*), five eastern plains garter snakes (*Thamnophis radix radix*), four eastern milk snakes (*Lampropeltis triangulum triangulum*), four midland brown snakes (*Storeria dekayi wrightorum*), two northern water snakes (*Nerodia sipedon sipedon*), and one northern redbelly snake (*Storeria occipitomaculata occipitomaculata*).

[b] Includes nine eastern tiger salamanders (*Ambystoma tigrinum tigrinum*), nine northern leopard frogs (*Rana pipiens*), seven green frogs (*Rana clamitans melanota*), three spotted salamanders (*Ambystoma maculatum*), and one western chorus frog (*Pseudocris triseriata triseriata*).

pected disease in eight (2%), while 48 (52%) of 92 amphibian records were of injuries and two of 92 (2%) were of suspected disease. The remainder of reptile and amphibian records, 231 (50%) of 465 and 42 (46%) of 92, respectively, contained no information relating to an underlying medical problem, and only a small minority of these contained notes that the animal was in a potentially life-threatening situation, such as a turtle in a road, or was removed for nuisance reasons.

Such interference translated into hundreds of unnecessary translocations to forest preserves of apparently healthy, uninjured animals, potentially disrupting population structures in the remnant habitats where the animal originated, not to mention the preserves themselves (Dodd and

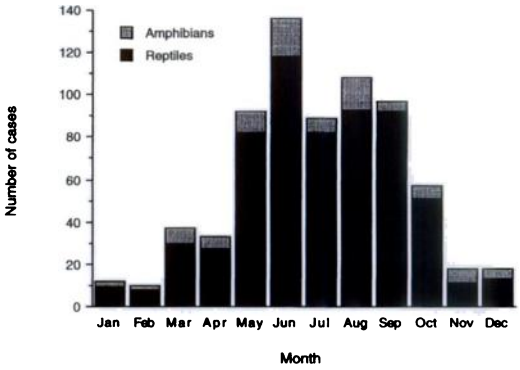


FIGURE 1. Number of reptile and amphibian cases admitted by month, 1980 to 1994, DuPage County, Illinois.

Siegel, 1991; Reinert, 1991). In addition, these individuals were likely subjected to undue stress from transport and captivity, as well as exposure to potential pathogenic organisms. Interestingly, uninjured animals were a progressively decreasing portion of the annual herpetofauna caseload between 1980 and 1994 (Fig. 2), thus, WWC's public education initiatives to prevent interference with uninjured native wildlife may have been succeeding.

Causes of injury to 180 reptiles and 21 amphibians were postulated from patient history and clinical signs. In reptiles, we assessed that 99 (55%) were hit by automobiles, 34 (19%) ingested fishing tackle,

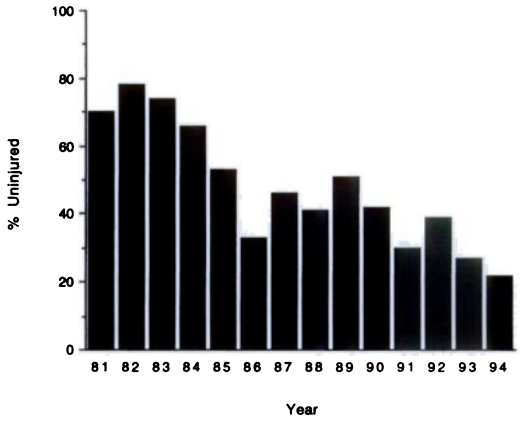


FIGURE 2. Percent of uninjured reptile and amphibian cases by year, 1981 to 1994, DuPage County, Illinois.

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and 15 (8%) were attacked by domestic dogs or cats. In amphibians, 8 (38%) were hit by automobiles, 7 (33%) were involved in gardening accidents, and 4 (19%) were collected previously as pets.

Medical diagnoses made from the cases were consistent with trauma from these causes. Of 216 reptiles, long bone and shell fractures were diagnosed in 64 (30%), multi-system trauma in 56 (26%), and lacerations in 44 (20%) animals. Of 42 amphibians, trauma was diagnosed in 15 (36%), fractures in 11 (26%), and lacerations in five (12%) animals. Only seven cases of naturally-occurring disease were described in reptiles (including abscesses, hepatopathy, shell disease, and possible tumor), and three in amphibians (abscess, hepatopathy, and possible tumor).

The significance of road mortality varies on populations of reptiles and amphibians (Bernardino and Dalrymple, 1992; Dodd et al., 1989; Langston, 1989). Painted turtles (*Chrysemys picta*) frequently are killed on roads in DuPage County during the nesting season (spring and early summer) (Ludwig et al., 1992). Though sampling errors are inherent in the WWC caseload, the predominance of vehicle related trauma across species was compelling as a primary risk factor to DuPage County reptile and amphibian populations. This issue has become the cornerstone of public education campaigns designed to minimize human impact on local herpetofauna.

Treatment was documented in 124 (21%) of 581 combined reptile and amphibian cases since 1989. Medical treatment (antibiotics, wound care, external fracture fixation) was attempted in 91 (16%) cases, and surgery (requiring the use of parenteral or inhalant anesthesia) in 32 (6%) animals. Parenteral fluid therapy alone was used in one case.

We released 354 reptiles and 54 amphibians into DuPage County forest preserves, representing release prevalences of 84% and 68%, respectively. The release percent was calculated as number released / (number admitted − number dead on arrival − number euthanized on arrival − number relocated to captivity). If uninjured animals were deleted from the above equations, however, the release prevalences decreased to 64% and 58% respectively.

No post-release monitoring studies of rehabilitated reptiles and amphibians were undertaken, leaving many ecological issues unresolved. In fact, the lack of long-term monitoring is a major shortcoming in many larger conservation projects for reptiles and amphibians involving relocation, repatriation, and translocation techniques (Dodd and Siegel, 1991), though some promising examples exist (Zappalorti and Rocco, 1994). Research is urgently needed in this area of wildlife rehabilitation.

Rather than stressing release percentages or success, wildlife rehabilitators may make a more profound contribution to native reptile and amphibian health and conservation by promoting prevention of human-related impacts to local populations such as road mortality and simple displacement.

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