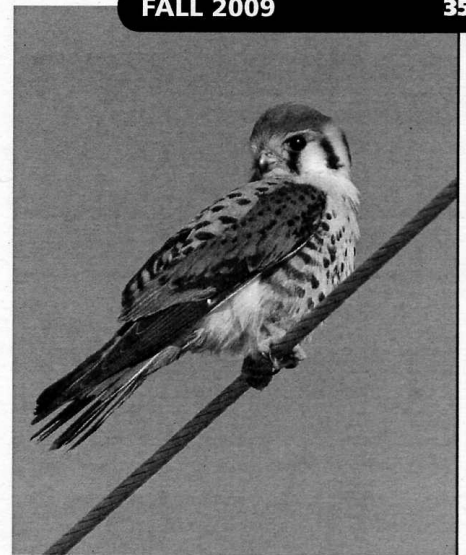


# American Kestrel

## (*Falco sparverius*):

### Nesting Phenology and Fledging Success in Central Alberta

BY LISA TAKATS PRIESTLEY AND EELCO DEGROOT, BEAVERHILL BIRD OBSERVATORY



GERALD ROMANCHUK

*The American Kestrel (Falco sparverius) is the smallest and most numerous falcon in North America (Smallwood and Bird 2002).*

Kestrels are found in every Natural Region in Alberta (Federation of Alberta Naturalists 2007). This small falcon will nest in tree cavities, woodpecker holes, crevices of buildings, holes in banks, nest boxes, or rarely in old nests of other birds. Three to seven eggs are laid (usually 4 or 5) over a period of 2 or 3 days. Habitats used by American Kestrels include open fields containing widely scattered trees, pastures adjacent to woodland borders, and rural, urban, and suburban areas with structures for perching and artificial nesting sites.

Although American Kestrel populations are considered Secure in Alberta (Alberta SRD 2006), declines in relative abundance were detected in all Natural Regions between 1992 and 2007 (Federation of Alberta Naturalists, 2007). Breeding Bird Survey data indicate that abundance declined in Alberta and Canada between

1995 and 2005 (Sauer *et al.* 2005). There have also been concerns expressed about declines in monitored migrant populations (HMANA 2007). New Jersey's Cape May Bird Observatory numbers of kestrels were 40% below average, and many other stations detected similar declines in 2006. In Florida, the American Kestrel is now listed as threatened (Florida Fish and Wildlife Conservation Commission 2008).

In 1988, a volunteer raptor nest card program was initiated by Alberta Sustainable Resource Development (Alberta SRD) to enable raptor banders and researchers to collect information on nest locations of birds of prey. This program developed into the Prairie Nest Record Scheme and Alberta Raptor Nest Card Programs. The Alberta Raptor Nest Card data are stored with Beaverhill Bird Observatory and data is submitted to Alberta SRD and the national Nestwatch

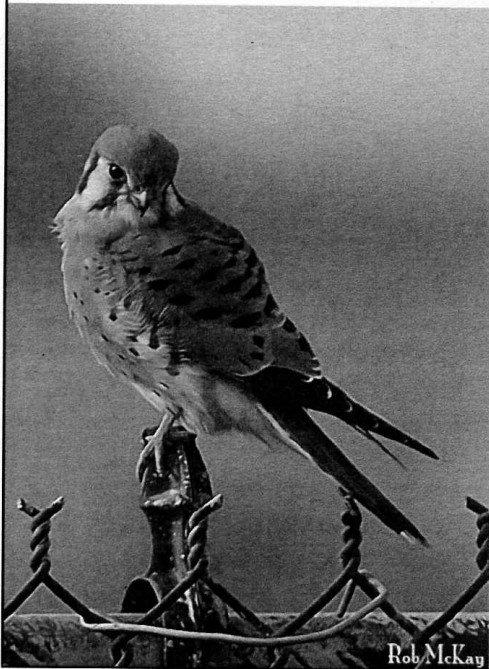
Program run by Bird Studies Canada. The Beaverhill Bird Observatory has been analyzing the phenology of a variety of raptor species from data collected in the nest card program (Priestley 2005a, Priestley 2005b, Priestley 2008, Priestley, unpublished.). This paper addresses the timing of nesting and fledging success of American Kestrels nesting in central Alberta, based on nest banding data collected between 1992 and 2008.

#### METHODS

The study area was located in central Alberta (latitudes 52.50 to 54.60, longitudes 110.50 to 114.2), surrounding the city of Edmonton. Nests were located in the aspen parkland and boreal ecoregions. Nests were located by one or more of: 1) visiting known nestboxes; 2) looking for pairs of birds on territory in the spring; or 3) through contact with landowners who found pairs or

nests on their land. For each nest, banders collected information on nest type (natural cavity or man-made), nest height, tree height, nest habitat, and banding data including an estimate of the age (in days) of the young at banding (Bent 1938, Boal 1994, Pyle 1997). All data from nest cards were entered into Microsoft Excel for analysis.

The estimated date of hatching was calculated by subtracting the age (in days) of the oldest-aged young from the date of banding. Laying date was estimated by subtracting the number of days required for incubation from the estimated hatch date. Fledging date was estimated by adding the number of days required for fledging to the estimated hatch date. The time required for incubation and fledging was determined as the largest number of days reported in the literature, since there is little information from Alberta. The estimated number of days needed for



Rob McKay

FIG. 1. Estimated egg laying dates of the American Kestrel in central Alberta 1992 to 2008.

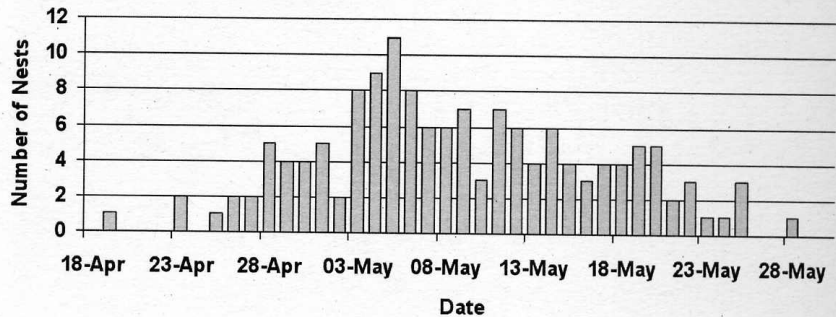
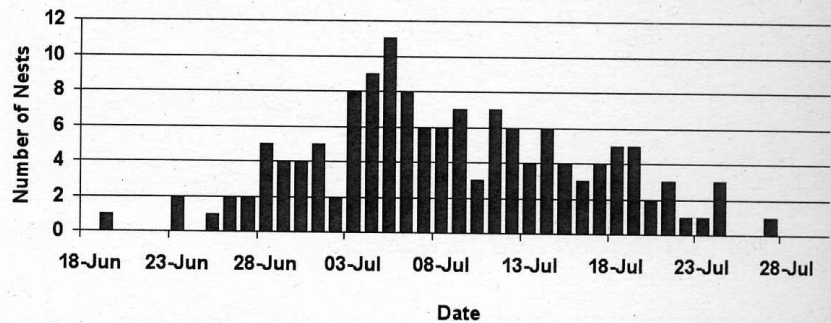


FIG. 2. Estimated fledge dates of American Kestrel nestlings in central Alberta 1992-2008.



incubation and fledging used for this paper were 31 and 31 days respectively (Smallwood and Bird 2002).

## RESULTS AND DISCUSSION

Of 156 American Kestrel nest records, 145 included estimated nestling age. Only 10 nests were from before the year 2000. In 2001 a more intensive nestbox project was initiated with more than 20 boxes being erected (DeGroot, pers. comm.). Five nests were in natural cavities and the remaining 140 were in nestboxes. The earliest estimated date for egg laying was April 19 and the latest was May 28 with an average egg laying date of May 8 (Fig 1). The average estimated hatching date was June 8 and the estimated fledging date was July 8 (Fig 2). Bird and Palmer (1988) reported American Kestrels

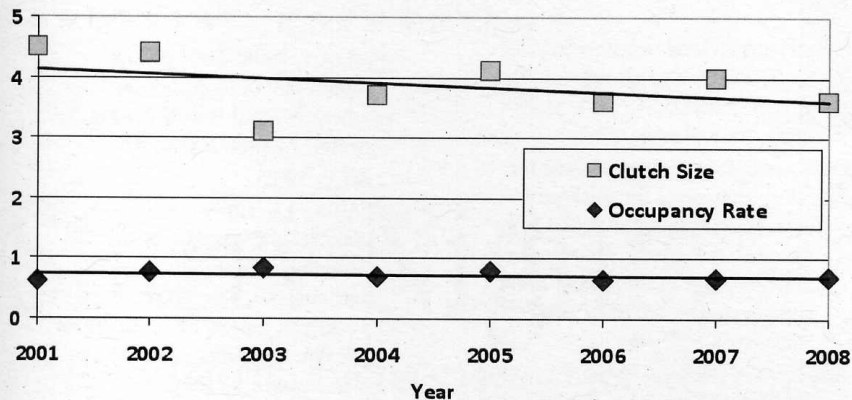
visited nest cavities in Montreal as early as the end of February. The range of dates for clutch initiation in Saskatchewan is reported to be April 30 to June 18 with the peak around May 20 (Bortolotti, unpubl. data). American Kestrels in Alberta nest earlier than those in Saskatchewan.

Of the 145 nests, 19 failed (no young fledged) and 126 were considered successful (one or more young ready to fledge at banding time). Four nest failures were caused by the tree falling or the nestbox being sheared off the tree. Most nest failures (89%) occurred during the egg stage of nesting. Clutch size averaged 3.9 (range 0 to 6), however, successful nests had an average of 4.4 young that were banded (considered ready to fledge). Many nests that had 4 or fewer young had added eggs in them.



A KESTREL FLIES OFF WITH A MOUSE IN ITS TALONS. ROB MCKAY

FIG. 3. Average clutch size of young at time of banding, years 2001 to 2008.



Nestboxes from 2001 through 2008 have been consistently checked and monitored (DeGroot, unpublished data). Average clutch size declined slightly between 2001 and 2008; however occupancy rates remained fairly stable.

Data on primary demographic parameters (productivity and survivorship) are needed to determine the factors responsible for population declines in these birds and to identify conservation and management actions to reverse the declines (Alberta SRD 2001, Desante 1995). Raptors such as the

American Kestrel can be affected by anthropogenic disturbances, particularly during the nesting season. Overall data from migration counts, Christmas Bird Counts, and Breeding Bird Surveys suggest substantial declines in populations of American Kestrels across North America, so there is some conservation concern (HMANA 2007). Nests of American Kestrels need to be protected from excessive disturbance from the end of April through to the end of July. Further, young American Kestrels are observed re-entering nest cavity for roosting for up to

12 d after fledging (Balgooyen 1976), therefore protection could extend to mid-August.

#### ACKNOWLEDGEMENTS

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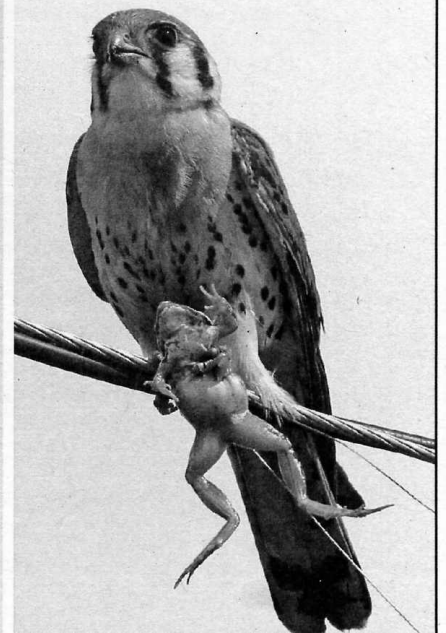
### "Frog Legs Anyone?"

BY STEVEN STRYDE

On July 16, 2008 I was fortunate enough to have captured an American Kestrel landing on a utility line at the west end of the Fort McMurray Airport. The Kestrel flew up from the ground holding a frog and, once perched on the wire, proceeded to bite the head. After I snapped six pictures, the bird flew off still grasping the frog. The title I chose for the photos was "Frog Legs Anyone?" Upon forwarding the photos to the bird club, I was encouraged to forward them FAN for *Nature Alberta*.

I used a Canon 20D with a Canon 100-400 mm lens.

I have been part of the Wood Buffalo Wild Bird Club in Fort McMurray for the last 7 years. I am an avid photographer of flora, fauna, and landscapes.



Naturalists, and Bird Studies Canada and is available on Beaverhill Bird Observatory's website at [www.beaverhillbirds.com/bboraptorsnests.htm](http://www.beaverhillbirds.com/bboraptorsnests.htm). We thank Ray Cromie, Al DeGroot, Rick Morse, Hardy Pletz, and Violet Pletz for their data contributions. We also thank Geoff Holroyd for his comments on an earlier draft of the paper. The continuing cooperation of landowners is of great value to this program.

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