

Results

Species whose future climatic summer ranges might exclude Illinois (i.e., possibly extirpated as summer residents) - Acadian Flycatcher, Willow Flycatcher, Least Flycatcher, Tree Swallow, Bank Swallow, Cliff Swallow, Black-capped Chickadee, Red-breasted Nuthatch, White-breasted Nuthatch, House Wren, Sedge Wren, Gray Catbird, Blue-headed Vireo, Yellow-throated Vireo, Warbling Vireo, Red-eyed Vireo, Blue-winged Warbler, Golden-winged Warbler, Nashville Warbler, Yellow Warbler, Chestnut-sided Warbler, Cerulean Warbler, Black-and-white Warbler, American Redstart, Swainson's Warbler, Ovenbird, Kentucky Warbler, Mourning Warbler, Hooded Warbler, Canada Warbler, Summer Tanager, Scarlet Tanager, Rose-breasted Grosbeak, Chipping Sparrow, Clay-colored Sparrow, Vesper Sparrow, Savannah Sparrow, Song Sparrow, Swamp Sparrow, Bobolink, Yellow-headed

Blackbird, Brewer's Blackbird, Baltimore Oriole, Pine Siskin and American Goldfinch.

Species whose future climatic summer ranges in Illinois might contract - Great Crested Flycatcher, Carolina Chickadee, Tufted Titmouse, Eastern Bluebird, Brown Thrasher, Northern Parula, Prairie Warbler, Louisiana Waterthrush, Common Yellowthroat, Indigo Bunting, Field Sparrow, Grasshopper Sparrow and Eastern Meadowlark.

Species whose future climatic summer ranges in Illinois might expand - Western Kingbird, Bewick's Wren, Northern Mockingbird, Loggerhead Shrike, White-eyed Vireo, Bell's Vireo, Prothonotary Warbler, Blue Grosbeak, Dickcissel, Bachman's Sparrow (not currently known to nest in Illinois), Lark Sparrow, Western Meadowlark and Orchard Oriole.

Species whose future climatic summer ranges might include Illinois - Say's Phoebe, Vermilion Flycatcher, Ash-throated Flycatcher,

Scissor-tailed Flycatcher, Black-headed Grosbeak, Painted Bunting, Great-tailed Grackle and Bullock's Oriole.

Discussion

These lists are not all-inclusive, since results obtained from models of some species were not adequate to assess how their climatic ranges might change. Nor do the lists include those species whose climatic ranges may undergo little change. Finally, these lists are based on output from a single, commonly used climate model. There are different models, and results vary between them. While the magnitude of the temperature increase is somewhat similar between models, the projected precipitation changes are often different. Using output from different climate models may therefore yield somewhat different results. In addition, the geographic scale of these models, like those of the underlying climate change model, is relatively coarse. As such, the models are unable to take into account localized topographic changes and the possible existence of suitable microclimates - along rivers, for example. Therefore, some of the species whose *climatic* ranges are projected as shifting out of Illinois may be able to persist if a suitable microclimate is available, especially on north facing slopes, land with high topographical relief, or along riparian areas.

Since these models were originally developed two of the species listed as possibly colonizing Illinois (Painted Bunting, Scissor-tailed Flycatcher) have since bred in the state (Kassebaum 2001, Bailey 2002). It is difficult, if not impossible, to say with any certainty whether these breeding events are tied to regional climate changes. It is only by collecting data on many species changing in



Climate models predict that the Grasshopper Sparrow's summer range in Illinois may contract. Kanae Hirabayashi took this photo of a male Grasshopper Sparrow with food.