

Sunbathing by Great Crested Flycatchers, *Myiarchus crinitus*

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Beginning summer 2008, I observed Great Crested Flycatchers, *Myiarchus crinitus*, each breeding season at the above address, on a lot dominated by mature American beech (*Fagus grandifolia* Ehrh.), tulip poplar (*Liriodendron tulipifera* L.), and several oak species (*Quercus* L. spp.). In 2008 and 2009, a pair nested nearly 50 ft (15 m) from the house, in a visible tree cavity. On numerous occasions between July 2009 and August 2016, I observed a Great Crested Flycatcher sunbathing on the vinyl cover of an outdoor spa on the house's deck. On two occasions, I recorded two Great Crested Flycatchers engaged in the behavior simultaneously, and on several occasions, one flycatcher was seen sunbathing while another was visible or calling nearby.

In 2015 and 2016, I recorded several sunbathings, and for some, but not all, I noted the date, time of day, air temperature, relative humidity, temperature of the vinyl surface (using an infrared or laser thermometer), duration of sunbathing, and the birds' activity. Sixteen sunbathing incidents were recorded on eight dates; in 2015: 6, 10, 19, 20, and 28 July, and 3 August; and in 2016: 11 and 16 July (Table 1). On the latter date, the accompanying photos were taken during multiple visits (Figures 1–4).

All observations began between 11:50 a.m. and 5:35 p.m. Duration of contact with the surface ranged from approximately 10 seconds to approximately 150 seconds. Air temperature ranged from 80° F (26.7° C) to 90° F (32.2° C). Relative humidity ranged from 39% to 71%.

The temperature of the vinyl surface (measured within several seconds of the birds' departure) ranged from 135.2° F (57.3° C) to 182.4° F (83.6° C). The vinyl surface temperature, unpleasantly hot to the touch, was higher than that of the surrounding wood deck by as much as 51° F (10.6° C).

Typical sunbathing activity included a bird landing first in a nearby tree, then flying down to the vinyl and immediately splaying wings and tail against the surface, then either scooting (propelling its body across the vinyl, its ventral surface constantly pressed against the vinyl, covering distances ranging from approximately 2–3 in [5.0–7.6 cm] up to approximately 6 ft [1.8 m]), or

remaining still, or alternating between scooting and stillness. Often, the head was cocked upward and the mouth gaped (once for approximately 120 seconds), most often while the bird remained still. When the bird scooted, it would maneuver so as to expose varying areas of its ventral surface to the vinyl. The longest observed period of scooting was approximately 17 seconds, and the longest stationary period was approximately 140 seconds.

Table 1. Incidental data collection of Great Crested Flycatcher sunbathing behavior, 2015 and 2016. (□ = no data collected)

Date	Time	Air Temperature (° F/° C)	Relative Humidity (%)	Surface Temperature (° F/° C)	Duration (seconds)	Scooting (seconds)	Stationary (seconds)
06 Jul 2015	1600	□	□	□	□	□	□
10 Jul 2015	1150	80/26.7	48	□	□	□	□
10 Jul 2015	visit #2	□	□	□	□	□	□
19 Jul 2015	1201	90/32.2	71	173.0/78.3	150	10	140
20 Jul 2015	1343	90/32.2	57	182.4/83.6	21	17	4
28 Jul 2015	1543	89/31.7	50	158.4/70.2	140	10	130
28 Jul 2015	1548	89/31.7	50	159.2/70.7	106	4	102
03 Aug 2015	1250	88/31.1	39	181.0/82.8	10	10	0
11 Jul 2016	1630	□	□	135.2/57.3	□	□	□
11 Jul 2016	visit #2	□	□	□	□	□	□
11 Jul 2016	visit #3	□	□	□	□	□	□
11 Jul 2016	1735	□	□	□	□	□	□
16 Jul 2016	1555	86/30.0	□	163.4/73.0	104	0	104
16 Jul 2016	1600	□	□	□	60	□	□
16 Jul 2016	1610	□	□	□	60	□	□
16 Jul 2016	1625	□	□	□	92	□	□

On 11 July 2016, four sunbathings were recorded between 4:30 p.m. and 5:35 p.m. On 16 July 2016, four sunbathings were recorded between 3:55 p.m. and 4:25 p.m.

While two other species—Carolina Wren (*Thryothorus ludovicianus*) and Blue Jay (*Cyanocitta cristata*)—were observed sunbathing on the wooden deck and rail, only the Great Crested Flycatchers were seen sunbathing on the vinyl. The Great Cresteds were never observed sunbathing on any surface other than the vinyl.

DISCUSSION

Published literature reports sunbathing by various species of birds. Hauser (1957) proposed two categories of sunbathing: “voluntary,” where a bird



Figure 1. Great Crested Flycatcher sunbathing location on the vinyl cover of an outdoor spa. Annapolis, Maryland, 16 July 2016. (Note that a Blue Jay is also sunbathing on the railing)



Figure 2. Great Crested Flycatcher sunbathing. Facing right. Annapolis, Maryland, 16 July 2016.



Figure 3. Great Crested Flycatcher sunbathing. Facing front. Annapolis, Maryland, 16 July 2016.



Figure 4. Great Crested Flycatcher sunbathing. Facing away. Annapolis, Maryland, 16 July 2016.

intentionally seeks a sunlit area, and “compulsory,” where the bird does not seek the situation (e.g., on a sunlit shiny metal platform feeder). Goodwin (1967) also mentioned shielding of nestlings by raptors and herons as a form of compulsory sunbathing, but stated that most sunbathing is voluntary. Kennedy (1969) summarized six possible functions for voluntary sunbathing: 1) sunrise thermoregulation as observed in Turkey Vultures (*Cathartes aura*), Black Vultures (*Coragyps atratus*), and Double-crested Cormorants (*Phalacrocorax auritus*) (Curry-Lindahl [1970] also documented this behavior in Reed Cormorants [*Microcarbo africanus*].); 2) ectoparasite control; 3) drying, as observed in cormorants and Anhingas (*Anhinga anhinga*) after leaving the water; 4) vitamin D production from a precursor in the uropygial gland secretion; 5) a possible role in molting; and 6) increased production of the uropygial gland secretion. Horsfall (1984) further elaborated on these possible functions. Lanyon (1958), studying a hand-raised Western Meadowlark (*Sturnella neglecta*) and a similarly-raised European Starling (*Sturnus vulgaris*), observed that sunbathing was initiated by heat and not light.

Although Miller and Lanyon’s review (2014) found no published data on sunbathing by Great Crested Flycatchers, Hauser (1957) had previously observed three Great Crested Flycatchers on 25 June 1955, 1:30–3:00 p.m., sunbathing on a primarily elm (*Ulmus* L. sp.) leaf compost heap. The air temperature was 90° F (32° C) and that of the compost heap’s surface was 140° F (60° C). My Internet search also found several photos of sunbathing by Great Crested Flycatchers (Brown 2011, Tallman 2011, Roberts 2015, Zee 2015, Bacquie 2016).

Five other *Myiarchus* species (Ash-throated Flycatcher, *M. cinerascens*; Brown-crested Flycatcher, *M. tyrannulus*; Dusky-capped Flycatcher, *M. tuberculifer*; La Sagra’s Flycatcher, *M. sagrae*; and Nutting’s Flycatcher, *M. nuttingi*) can occur in the United States (Dunn and Alderfer 2006). Cardiff and Dittmann (2000) reported that there was no published literature on sunbathing for Ash-throated Flycatcher. They reported the same for Brown-crested Flycatcher (Cardiff and Dittmann 2002). I could find no reports for those two species or for either La Sagra’s Flycatcher or Nutting’s Flycatcher. Tweit and Tweit (2002) reported that Skutch (1960) had observed sunbathing by a Dusky-capped Flycatcher. Skutch’s account stated:

“Once while I sat in a blind in the forest on Barro Colorado Island [Panama], watching a nest of the Black-throated Trogon [*Trogon rufus*], a Dusky-capped Flycatcher sunned itself in a patch of sunshine that fell on a prostrate tree close beside me. Lying flat on the trunk, it spread its wings and fluffed out its body feathers to let the sun’s rays penetrate deeply into them.”

The behaviors exhibited by Great Crested Flycatchers on the vinyl cover of my outdoor spa (i.e., stationary with splayed wings and tail against the vinyl surface, head cocked upward, mouth gaped) are all similar to those detailed in Hauser (1957). Considering the six possible functions for voluntary sunbathing (Kennedy 1969), two can be immediately eliminated in this situation. The observations occurred during the warmest part of the day, thereby eliminating sunrise thermoregulation. The flycatchers were not wet prior to sunbathing, thereby eliminating feather drying. Whether uropygial gland secretions or molting were involved, is unknown.

Ectoparasite control seems a viable hypothesis for my observations of sunbathing by Great Crested Flycatchers. Blem and Blem (1992) observed Tree Swallows (*Tachycineta bicolor*), Violet-green Swallows (*T. thalassina*), and Barn Swallows (*Hirundo rustica*) sunbathing on a shiny aluminum roof. They found the behavior to be consistent with either ectoparasite removal or soothing of skin areas involved in molting. Blem and Blem (1993) conducted experiments to see if sunbathing had an effect on ectoparasite load. One group of swallows was treated with a pesticide and a control group was not. They found that the control group sunbathed substantially more than the pesticide-treated group (23 vs. 2 visits, respectively) during the two-week expected efficacy of the pesticide treatment. During the subsequent two-week period, sunbathing visits increased for both groups, but remained higher for the control (49 vs. 29 visits). Blem and Blem surmised that ectoparasite control was the best explanation for this behavior. The actual mechanism for ectoparasite control by sunbathing was unknown, but various hypotheses mentioned were that high temperatures might kill, immobilize, or discourage ectoparasites; high temperatures might possibly concentrate ectoparasites for removal by preening; or sunlight itself may have a pesticidal effect (Blem and Blem 1993). Control of feather-degrading bacteria has also been mentioned as a reason for sunbathing (Gunderson 2008). Saranathan and Burt (2007) found that sunlight inhibited the growth of feather-degrading bacilli, a common inhabitant on avian plumage.

I speculate that there is a direct relationship between temperature and ectoparasite control, and that by sunbathing on the vinyl surface rather than the cooler wooden deck and rails, the Great Crested Flycatchers sought the hottest surface they could find/tolerate.

Although there is photo documentation of sunbathing by Great Crested Flycatchers on the Internet (Brown 2011, Tallman 2011, Roberts 2015, Zee 2015, Bacquie 2016), my observation may be only the second account in the published literature.

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