Zimmerman et al. 2014). One such disturbance is canopy shearing, which can result in short- and long-term community changes (Willig, Presley, and Bloch 2011; Zimmerman et al. 2021). For example, an abundance of pioneer plant species resulted in increased population sizes of walking sticks (*Lamponius sp.*), but also increased mortality due to the higher temperatures associated with a reduction of canopy cover (Willig et al. 2011). As such, some studies have begun to apply ecological and molecular tools to understand if species can endure or adapt to extreme weather events (Campbell-Staton et al. 2017; Siepielski et al. 2017; Donihue et al. 2018; Dufour et al. 2019; Riddell et al. 2021).

In addition to impending climate change, many species face challenges owing to anthropogenic habitat loss and modification and the human-facilitated spread of non-native species and diseases (Alberti et al. 2020; Miles et al. 2021). Interestingly, some species can thrive in heavily urbanized areas, exploiting beneficial conditions, such as the lower abundance of competitors or predators (Pieniążek, Sokół, and Kozakiewicz 2017), or the presence of new habitats, such as artificial night lighting (Schoeman 2016; Baxter-Gilbert et al. 2021; Nordberg and Schwarzkopf 2022). An urban environment can provide novel resources, such as supplemental feeding opportunities (Stofberg et al. 2019). Moreover, some urban exploiters have not only acclimated but adapted to urbanization, resulting in replicated patterns of phenotypic change across multiple cities (Diamond et al. 2018; Cosentino and Gibbs 2022; Santangelo et al. 2022). For example, white clover (*Trifolium repens* L., Fabaceae) populations evaluated across 160 cities tended to produce less hydrogen cyanide, a chemical related to water stress and herbivory resistance, compared to non-urban counterpart populations (Santangelo et al. 2022). Similarly, in some species of Darwin's finches, human food subsidy exploitation reduces the correlation between seed toughness and beak morphology (De León et al. 2011, 2019). Due to the scarcity of studies of highly urbanized populations responding to climate disturbances, it remains unclear how the effects of urbanization and extreme weather events such as hurricanes may interact to drive evolutionary change: climate disturbances may affect urban and forest populations differently.

In 2017, Hurricanes Irma and Maria, both Category5 storms, impacted several island countries in the Caribbean (Pasch, Penny, and Berg 2018). Subsequently, multiple studies used tropical anoles (lizards in the genus *Anolis*) as a model to evaluate evolutionary responses to hurricanes (Donihue et al. 2018, 2020; Dufour et al. 2019; Rabe et al. 2020; Avilés-Rodríguez et al. 2021; Simon et al. 2023). In particular, focusing on the Turks and Caicos and Florida (USA), Donihue et al. (2018, 2020) and Rabe et al. (2020) both found significant phenotypic shifts in anole limb and toepad morphology following the hurricanes. Laboratory experiments showed that anoles with longer forelimbs, larger toepads, and shorter hindlimbs had a lower probability of dislodgement from their perches (Donihue et al. 2018). Lizards with longer forelimbs had a stronger gripping ability; however, lizards with longer hindlimbs were more likely to be dislodged by wind exposure (Debaere et al. 2021).

Anole toepads are also likely targets of hurricane-driven selection due to their tight association with structural habitat use (Irschick et al. 1996; Miller and Stroud 2021). Anole toepads are composed of modified ventral lamellae scales that are covered in microscopic hair-like structures called setae. Adhesion is achieved by Van der Waals bonds between setae and any surface to which an anole clings (Williams and Peterson 1982; Autumn and Peattie 2002; Garner et al. 2019). Prior research has shown that anoles with larger toepads and more lamellae produce greater clinging forces (e.g., Irschick et al. 1996). Larger toepads have also been associated with more arboreal habitat use (Elstrott and Irschick 2004), and the evolution of toepads is thought to have contributed to species diversification (Burress and Muñoz 2022). The evaluation of morphological responses to Hurricane Maria in anoles have shown that hurricanes can sometimes drive rapid phenotypic change, but the magnitude and direction of this change can vary substantially depending on the species, island, and habitat type. For instance, research by Avilés-Rodríguez et al. (2021) showed that following the 2017 hurricanes, populations of Puerto Rician *Anolis cristatellus* decreased in average body size and relative toepad area in forest areas—while urban populations decreased in body size, but largely maintained the same toepad morphology relative to their body size. Moreover, Dufour et al. (2019) found no morphological shifts associated with Hurricane Maria in two anole species (*A. cristatellus, A. oculatus*) on the island of Dominica. Similarly, populations of *Anolis gundlachi* did not show changes in body size or limb lengths in response to the 2017 hurricanes in Puerto Rico (Acevedo et al. 2022).

Anole toepads have also been demonstrated to be under selection in urban habitats (Winchell et al. 2016, Winchell 2018). In particular, urban anoles tend to have larger toepads and longer limbs: Traits that have been hypothesized to improve clinging performance when perching on smooth surfaces typical of urban habitats. Moreover, larger toepad areas can compensate for the loss of functional utility of the claw on anthropogenic substrates, such as painted concrete (Naylor and Higham 2019; Falvey et al. 2020), and contribute