| Order | Max Surveyed Height (m) | Vision, Light & Color | Heat | Wind | Flight & Migration | Sound & Vibration | Other |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Shape  Description automatically generated with medium confidenceLepidoptera | Moths: 450  Butterflies: 1250 | Phototactic  May have preference for shorter light wavelengths (395, 418 nm) | Thermoregulate via basking | Some species utilize high winds for migration  May be able to use wind direction to orient flight | Several species migrate at high altitude over very long distances  Form migrating swarms  Locate mates via hilltopping  Synchronous flight muscles | Use airborne acoustic signals to detect and avoid predators  Anthropogenic noise may cause stress in larvae | Found in stomach of bats killed via turbine |
| Shape  Description automatically generated with low confidenceHymenoptera | >550 | Likely not attracted to red obstruction lighting.  Attraction to the color white.  Attraction to UV light | Bees may choose to forage on warmer inflorescence  Capable of warming via shivering | Some species capable of flying in high wind speeds | Asynchronous flight muscles  Honeybees form swarms to locate new nest sites  Locate makes via hilltopping | Honeybees use vibration to communicate  Parasitoids may use vibrations to detect hosts | Found in stomach of bats killed via turbine |
| Shape  Description automatically generated with medium confidenceOdonata | Dragonflies: 272  Damselflies: 57 | May prefer habitats with less shade  High visual acuity  Sensitive to polarized light  Coloration of individuals may influence competition  Use vision for hunting | Thermoregulate via basking | Some species use high winds for migration  Forage and interact in lower wind speeds | 18 NA species considered migratory. Most migrate at altitudes <100m  *Pantala flavescenes* migrates at high altitudes  Synchronous flight muscles  Locate mates via hilltopping | - | - |
| Shape  Description automatically generated with medium confidenceHemiptera | Leafhoppers: 922  Stink Bugs: 922 | May be attracted to yellow and red  Use vision for predator avoidance  May be attracted to white light  Phototactic | Triatomine bugs can perceive infrared radiation, among the most heat sensitive insects.  Leafhoppers showed attraction to solar heat-based traps  Thermoregulate via basking | Use wind for dispersal  Modify flight direction based on wind  Can cling to metal surfaces in high winds | Asynchronous flight muscles  Some species migrate | Use airborne acoustic signals  Substrate-borne noise may affect signaling  May be more abundant in high-noise areas | Found in stomach of bats killed via turbine |
| Shape  Description automatically generated with medium confidenceDiptera | 507 | Showed significant attraction to white turbine mimics  Phototactic | Tabanids show strong attraction to heat  Thermoregulate via basking  Hematophagous species may be particularly heat sensitive | Use wind to disperse  Wind speed may affect oviposition sites | Asynchronous flight muscles  Form evening mating swarms  Locate mates via hilltopping  Noise may inhibit host-location | Use airborne acoustic signals  Noise may mask mating calls | Found in stomach of bats killed via turbine  Some species found basking on turbine towers |
| Shape  Description automatically generated with low confidenceOrthoptera | >400 | May prefer 540-570 nm wavelengths and vertical stripes  May be attracted to yellow | Thermoregulate via basking  Fly in warm temperatures | Use wind to disperse | Synchronous flight muscles  Many species form large swarms | Use airborne acoustic signals  Exposure to anthropogenic noise may hinder mate location, delay maturity, and reduce lifespan  Modify calls | Found in stomach of bats killed via turbine |
| Shape  Description automatically generated with low confidenceColeoptera | Ladybird: 1100 | Phototactic  May prefer shorter light wavelengths (395, 418 nm) and UV light | Some species may rely on floral heat rewards to reduce mating energy costs  Thermoregulate via basking  Some species have infrared sense organs | Wind may affect dispersal and oviposition sites  Use wind to orient to olfactory stimuli | Some species migrate at high altitudes  Asynchronous flight muscles  Locate mates via hilltopping | Can influence reproductive success and brood size  Use airborne acoustic signals  May be more abundant in high-noise areas | Found in stomach of bats killed via turbine  Some species found overwintering on turbine towers |
| Shape  Description automatically generated with medium confidenceNeuroptera | >550 | May have preference for cool, white light (440, 580nm) | Heat stress harmful to larvae | May respond differently to wind depending on habitat | Synchronous flight muscles | Use airborne acoustic signals  Use substrate-borne vibrations to locate prey | Found in stomach of bats killed via turbine |
| Shape  Description automatically generated with medium confidenceTrichoptera | 300 | Low upper thermal tolerance  May have greater attraction to artificial light near water | Some have seasonal changes in upper thermal limits | May use wind to disperse | May fly at forest canopy level to disperse | May be more abundant with increased low-frequency noise | Found in stomach of bats killed via turbine |
|  |  |  |  |  |  |  |  |
| Ephemeroptera | 300 | May have greater attraction to artificial light near water | Some have seasonal changes in upper thermal limits | May use wind to disperse | Form large mating swarms | - | Found in stomach of bats killed via turbine |
| Shape  Description automatically generated with medium confidenceThysanoptera | >550 | Evidence for and against attraction to artificial light  May show avoidance to red light  Phototactic  May prefer areas with high UV light | Some can adapt to cold and hot conditions | Likely dispersed by wind | Asynchronous flight muscles  May form swarms | - | - |
| Shape  Description automatically generated with low confidencePsocodea | >550 | Attraction to UV and green wavelengths | Hematophagous species may be particularly heat sensitive | - | Wings often absent or reduced | - | Found in stomach of bats killed via turbine |

**Families of note: Noctuidae (Lepidoptera), Nymphalidae (Lepiodptera), Alydidae (Hempitera), Coccinellidae (Coleoptera)**

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