



THE ZOOLOGICAL LIGHTING INSTITUTE™

Zoological Lighting Institute Sustainable Design Grant Guidelines for Submission

Deadline for submission: May 1 2019

The ZLI Sustainable Design Grant Program is a newly initiated program intended to encourage attention to light and lighting within animal friendly, sustainable design fields. Sustainable and socially responsible design is incomplete without attention to animals and the biodiversity they represent. Animals and their ecosystems cannot survive without natural light occurring in natural cycles. Due to unprecedented amounts of light pollution in the environment, this now requires innovative design concepts and products to provide. The ZLI Sustainable Design Grant Program seeks to advance design in order to account properly for natural light in necessary ways that have not yet been achieved.

ZLI offers 4 awards of up to \$1000 USD each to eligible students and designers across three different sub-disciplines of design: 1) Fashion 2) Architecture and 3) Product Design. In addition, one award will be granted to a designer successful in broadening cultural, economic participation in photobiology research (the PhotoDiversity Grant).

Eligibility requirements:

Awards are open to registered design school students and design school graduates in practice seeking to bring a particular concept to market.

Awards may fund preliminary and/or ongoing research in addition to a particular product or project. Awards may fund an isolated research project completely, or a larger project benefiting from additional funding sources. Awards will be granted to the best proposal in each of the aforementioned sub-disciplines, and is open to work impacting all animal classes and/or biomes. However, ZLI is currently pursuing several projects and campaigns related to insects, sea turtles and birds. Research into design based upon these classes, and the relationships of light to them, is currently a top priority, but all proposals falling within the above sub-categories will be fully considered.

Awards are made payable to the individual recipients and no part of an award may be used for the payment of indirect costs to the recipient's institution. All funds must be expended directly in support of the proposed project or product and ZLI retains marketing rights to products and projects it supports in order to advance its mission.

Furthermore, funds can be used for direct costs of research (equipment, supplies, travel to research sites). Funds cannot be used for salaries (for either/or the principal researcher or technicians) nor for conference travel. Any equipment purchased will become the property of the proposal author. Awards are made in amounts of up to a maximum of \$1000 USD.



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Proposal Directions and Funding Priorities

ZLI supports the sciences of life and light through the arts for animal welfare and wildlife conservation and thus the proposal will include three components: an abstract, a 90 second video highlighting value of the research, project or product to the mission of ZLI, and a 4-page maximum CV. The abstract can be no longer than 700 words and fit on no more than 4 A4 size pages (not including references but including all other text and necessary graphics (i.e. figure legends).

The abstract needs to include proposal title, proposal author and affiliation, host institution, specific grant discipline (e.g. fashion, architecture, product design). Use of graphics and diagrams are encouraged but all figures must fit within the 4 page limit.

ZLI is committed to increasing the diversity and inclusion of researchers and research alike, and thus welcomes all proposals that aim to broad participation within sustainable design. We especially invite creative proposals that will increase the ability of all to participate in this crucial research. To apply for the Sustainable Design 'PhotoDiversity' Grant, please include an additional 300 word maximum section on how your research/program will broaden participation within photobiology, and be certain to discuss this within the video.

Deadline for submission is 1 May 2019. All queries and submissions are to be sent to admin@zoolighting.org , under the heading 'Sustainable Design Grant Application' .



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Solicitation for ZLI donors to support the ZLI Grants-in-Aid of Photobiology Research Program

ZLI offers an annual research grant opportunity for early-career researchers focused on studying the importance of light conditions on organisms. For animals and other living beings, light is arguably the most important environmental factor for organisms. Animals evolved under specific lighting conditions and their behavior, physiology, and ecology are inexorably tied to proper and naturally dynamic levels of light.

Understanding light effects on biology could not be more important as: 1) present human effects are greatly changing the light environments in which animals exist; and 2) zoos and aquariums, which focus on conserving Earth's biodiversity have no protocol or even reliable information on how to provide proper lighting for their animals' well-being. The two biggest human contributors altering natural light environments are: 1) human lighting at night (i.e. light pollution); and 2) deforestation. The research documenting the importance of natural light conditions for animal behavior, physiology, and ecology is accumulating, although many gaps remain. Thus, ZLI aims to fill in gaps of the importance of light for animals through three disciplines of biology: physiology, sensory ecology, and macro-ecology.

It is known that daily changes in light levels drive animal physiology through daily timing of changes in metabolism, sleep, stress, and reproductive biology. However, the details of how light drives these different organismal effects is still lacking and thus ZLI will fund one proposal investigating how light drives physiological process in organisms as well as another proposal investigating the biochemistry of how light alters cells and thus physiology.

Most animals rely on vision for sensing their environment to find food and mates, as well as evade danger (predators and environmental threats). In fact, it has been estimated that about 10% of an animal's energy is solely dedicated to visual processes. Sensory ecology investigates how environmental conditions (e.g. lighting, vegetation, etc.) affect the ability of organisms to use their senses (e.g. vision and hearing). As animals have evolved visual abilities under specific light conditions and specific light cycles (daily, seasonal, and lunar), we must understand how artificial light conditions alter vision and the related biological processes. Thus, ZLI will fund three proposals focused on sensory ecology in these three topics: animal eyes; animal coloration; and how vision interacts with other senses (e.g. hearing and smelling).

Lastly, light conditions vary greatly across large landscapes due to both geological (e.g. mountains) and biological features (e.g. forests and plains) and now with the invent of human lighting and habitat destruction, organisms are no longer experiencing the natural light conditions but instead artificial conditions. Thus, ZLI will fund two proposals investigating the biological effects of large-scale changes in lighting both in time (e.g. across years) as well as across space (e.g. from urban centers to rural areas).

From understanding the effects of natural and unnatural light on animal physiology, sensory ecology, and macro-ecology, ZLI will be able to better inform zoos, aquariums, conservation entities, and public policy on how to best mitigate the effects of one of the greatest human disturbances of the 21st century – alteration of light on Earth.



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