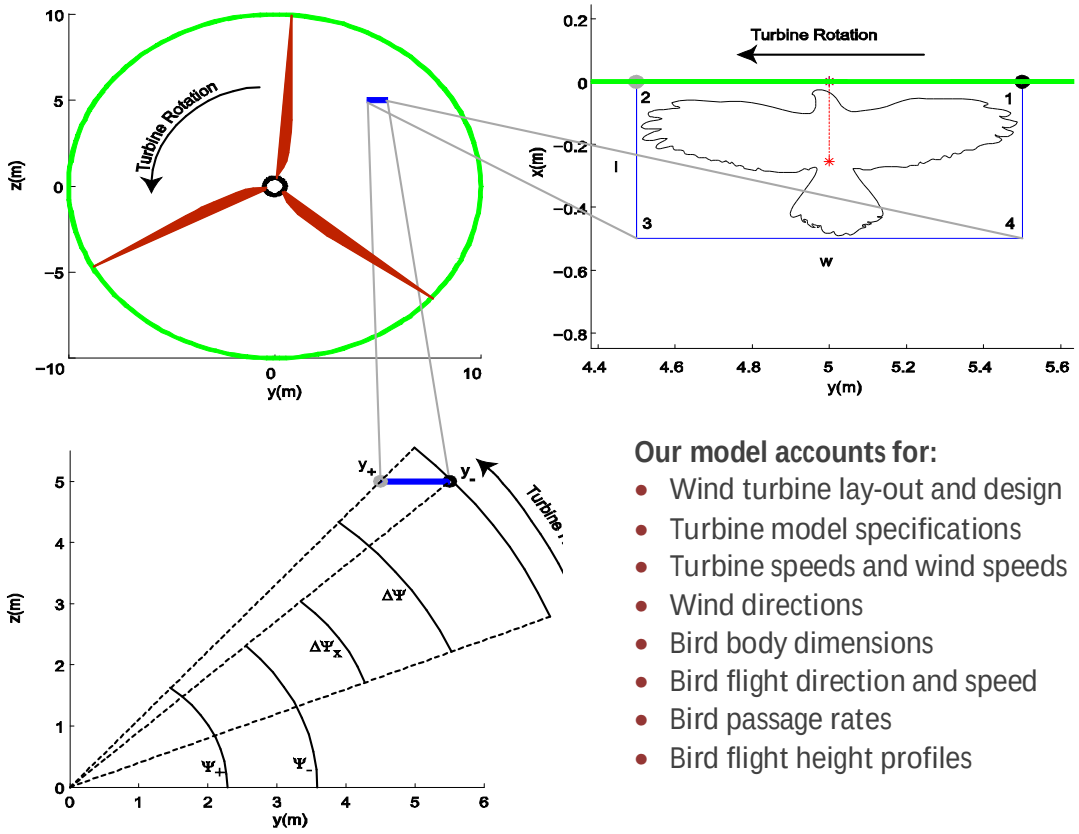
# THE HAMER AVIAN Risk of Collision Model

## APPLICATIONS FOR PROPOSED AND EXISTING WIND POWER PROJECTS

Wind power is quickly becoming an attractive renewable energy source across the globe due to its increasing efficiency and minimal emissions. Thus, the number of wind turbine generators operating worldwide is expected to grow exponentially in the near future.

Wind turbines have been shown to pose a threat to bird populations resulting from direct collisions with both the rotor blades and turbine towers. The chance that a wind power project might impact a listed species or migratory birds increases the need for a model to quantitatively assess the collision risk potential of proposed or existing wind power facilities. Due to the potential impact on endangered and/or protected bird species, it is becoming common to assess the collision risk of proposed wind farms for local and migratory bird populations prior to construction.

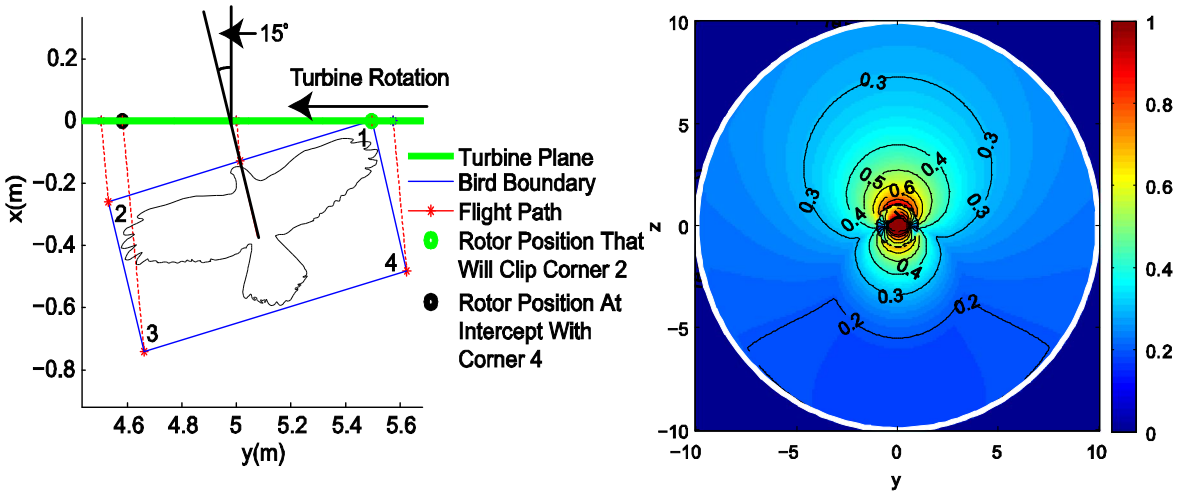



**Our model accounts for:**

- Wind turbine lay-out and design
- Turbine model specifications
- Turbine speeds and wind speeds
- Wind directions
- Bird body dimensions
- Bird flight direction and speed
- Bird passage rates
- Bird flight height profiles

The **Hamer Avian Risk of Collision Model** was designed and developed by Ph.D level biologists and modeling experts to assess the probability of collision posed to endangered and threatened birds flying through an active or proposed wind farm.

Using site specific avian data collected with modified marine radar technology and audio visual survey techniques we can use the model to estimate potential risk of mortality to a variety of species. The Hamer Model was designed as an extension to the currently accepted model, known as the Tucker Model, but makes significant improvements. While the Tucker Model allows for the calculation of collision probabilities for birds flying head-on into a single turbine, the Hamer Model further enables the calculation of collision probabilities for varying angles of approach and multiple turbine arrays. The Hamer Model makes use of the surveyed flight path directions, speeds, and heights, along with the tower specifications and layout of an existing or proposed wind farm to estimate the total collision risk for the wind project.

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