**1. Home Page: Overview**

**Tabs**: 1 (Main Section)

**Page Layout:**

* **Header**:
  + Logo (centered)
  + Navigation menu: (links to Climate-Driven Forest Management, Invasive Species Control, About Us)
* **Hero Section**:
  + Key message: *"Predicting plant development and Pest Invasions for Smarter Forest and Land Management."*
  + Call-to-action button: *"Start Predicting Now"*
* **Introduction Text**:

*Our platform uses real-time climate information and historical data to forecast critical plant development stages and pest invasion timings. By understanding how climate conditions influence tree growth and pest cycles, we provide forest managers, farmers, and environmentalists with essential insights to optimize land management, protect ecosystems, and plan effectively for climate-driven changes.*

*With our predictive tools, you can:*

* ***Anticipate plant development stages****, like budburst, for better forestry and land management.*
* ***Predict pest invasions*** *linked to tree growth cycles, helping to mitigate damage and manage resources.*
* ***Optimize management strategies*** *by staying ahead of climate-induced changes.*
* **Featured Sections**:
  + **Ask AI**: **Climate-Driven Forest Management** Link to the interactive AI page
  + **Ask AI: Invasive Species Control**
  + **Ask AI: Pest-Plant Interaction Dynamic and Economic Loss**

**2. Featured Section: Climate-Driven Forest Management**

* 1. **Subsection under 2: budburst stages of** *Quercus robur* (English oak), London

**A collage of a tree branch

Description automatically generated**

**Intro text for this subsection:**

*Our tool uses historical and real-time* ***climate data*** *to* ***predict budburst timing*** *in trees, helping farmers, researchers, and environmentalists* ***adapt to climate change*** *and* ***optimize agricultural practices****. By understanding* ***how climate influences tree growth****, users can forecast when trees will begin their seasonal growth, allowing them to:*

* ***Plan early for pest invasions****: Anticipate pest outbreaks linked to budburst.*
* ***Optimize planting schedules****: Adjust planting times based on* ***localized climate conditions****.*
* ***Track climate impacts on crops****: Monitor how* ***changing weather*** *affects tree phenology and crop cycles, adjusting practices accordingly.*
  + - **AI Response Area**:
* **AI-Generated Answer**: Once the question is submitted, the AI will provide a **data-driven response** based on the database and predictive models.
* **Example response:** *"Based on current weather trends and historical data in your region, budburst is expected to occur in early April this year. Such early budburst is susceptible to seasonal frost, which could damage tender new shoots. To mitigate this risk, we recommend the following actions:*

1. ***Monitor Temperature Forecasts****: Stay updated on weather predictions, particularly for late frosts, in the lead-up to early April. This allows for timely interventions to protect new growth.*
2. ***Frost Protection Measures****: Prepare frost protection strategies such as using frost covers, blankets, or tree wraps to shield young buds from cold temperatures. For larger areas, consider using irrigation to create a protective layer of ice around trees, preventing frost damage.*
3. ***Adjust Pest Control Plans****: Early budburst may also correlate with earlier pest activity. Consider scheduling pest management treatments, such as organic sprays or biological controls, before pests become active.*
4. ***Plan for Early Harvest or Growth Monitoring****: If you’re managing timber or other tree-related resources, prepare for potential changes in growth patterns that could affect harvest timing or other management decisions."*