YOUR PARTNER IN BIOSECURITY

Protection Through Detection

CROPWATCH AFRICA

PLANT HEALTH • ANIMAL HEALTH • FORESTRY HEALTH • ENVIRONMENTAL HEALTH

WE CHANGED OUR NAME!

Protection Through Detection
CROPWATCH AFRICA

BIOSYNTRIX

BIOSECURITY • SYNERGY • TECHNOLOGY

BIO = BIOSECURITY SYN = SYNERGY TRIX = TECHNOLOGY

FOCUSING ON PROTECTING ECOSYSTEMS (BIOSECURITY) THROUGH COLABORATIVE EFFORTS (SYNERGY) WHILE LEVERAGING MODERN INNOVATIONS (TECHNOLOGY)

Your Partner in Biosecurity

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USING ADVANCED DATA-DRIVEN TECHNOLOGY FOR PEST AND DISEASE DETECTION

Modern Silviculture Symposium
Silviculture 4.0

Presented by: Roedolf Nieuwenhuis

Howick, KwaZulu-Natal, South Africa

16 October 2024

1. SATELLITE IMAGERY AND GIS MAPPING

Large-Scale Monitoring: Satellites provide high-resolution imagery for monitoring vast forest areas.

GIS Maps: Combining satellite data and GIS systems highlights pest hotspots and disease-prone zones.

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2. DRONES AND REMOTE SENSING

Aerial Surveillance: Drones with multispectral or thermal sensors detect forest health issues like pest infestation and diseases.

Precise Monitoring: Drones offer cost-effective monitoring of large forest areas, identifying stressed zones early.

3. AUTOMATED PEST TRAPS

Real-Time Detection: AI-powered traps identify and count pests in real-time, continuously monitoring activity.

Targeted Interventions: Pest population data helps optimize timing for pest control measures.

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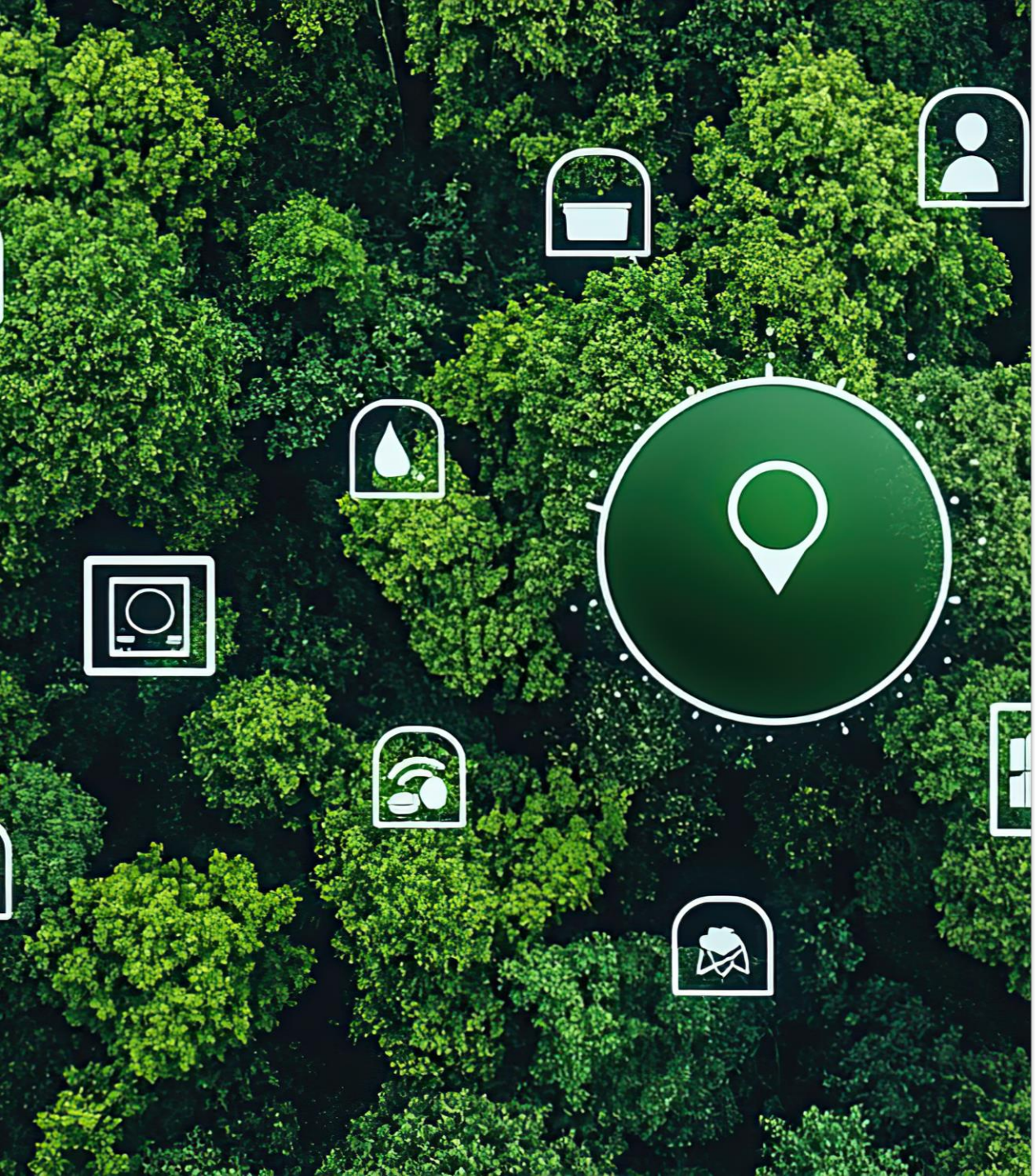

4. INTERNET OF THINGS (IOT) SENSORS

Environmental Monitoring: IoT sensors track soil moisture, temperature, and humidity to monitor pest or disease-favorable conditions.

Integrated Data: Sensors feed data into cloud systems for real-time forest health analysis.

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5. SATELLITE-BASED GROUND WEATHER STATIONS

Weather and Climate Data: Weather stations provide real-time data on local forest microclimates, influencing pest behaviors.

Predictive Analytics: AI models use weather data to predict pest outbreaks based on environmental trends.

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6. MACHINE LEARNING AND AI FOR PREDICTIVE ANALYTICS

Data Analysis: AI detects early signs of pest and disease outbreaks by analyzing environmental and pest data.

Forecasting: Predictive models forecast pest and disease risks based on real-time and historical data.

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7. CLOUD-BASED PLATFORMS AND DECISION SUPPORT SYSTEMS

Centralized Data: Cloud platforms integrate data from drones, satellites, sensors, weather stations, and traps.

Decision Support: DSS systems offer actionable insights and alerts for pest control and forest management.

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8. INTEGRATED MANAGEMENT

By combining these advanced technologies, forest managers can adopt a holistic, data-driven approach to pest and disease management in silviculture. This approach enables the following:

Early Detection

Precision Interventions

Sustainable Practices

Adaptive Management

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