# Causal feature selection for UAV crash predictions.

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# Why should we predict UAV crashes?

- Habitat loss for (endangered) species.

Los Angeles Times



## A generation of seabirds was wiped out by a drone in O.C. Scientists fear for their future

As many as 2,000 elegant tern eggs were abandoned on a nesting island at Bolsa Chica Ecological Reserve in Huntington Beach after a drone crashed, scaring off the would-be parents. (California Department of Fish and Wildlife)

By ALEX WIGGLESWORTH | STAFF WRITER

JUNE 7, 2021 4 AM PT

***For the record:***

***11:04 a.m. June 7, 2021:*** *The photo caption in an earlier version of this article stated 3,000 elegant tern eggs had been abandoned. It was 1,500 to 2,000 eggs.*

CORONAVIRUS, VACCINES AND PANDEMIC ›

Visiting the Eiffel Tower, the Louvre or a Paris cinema? Have your COVID pass ready

California coronavirus hospitalizations hit highest point in months as Delta spreads

U.S. life expectancy fell by 1.5 years in 2020,

# Why should we predict UAV crashes?

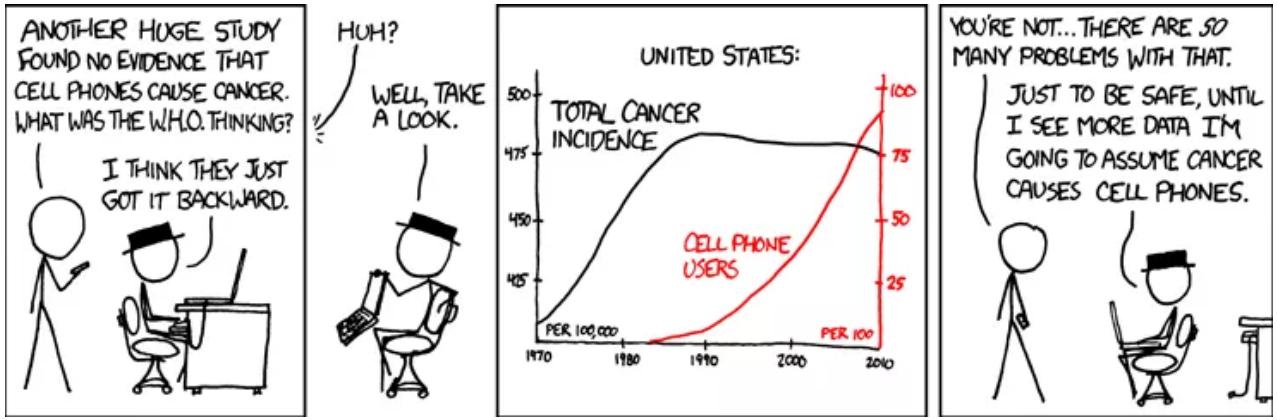
- Habitat loss for (endangered) species.
- Massive monetary lost and wasted time.

# Why should we predict UAV crashes?

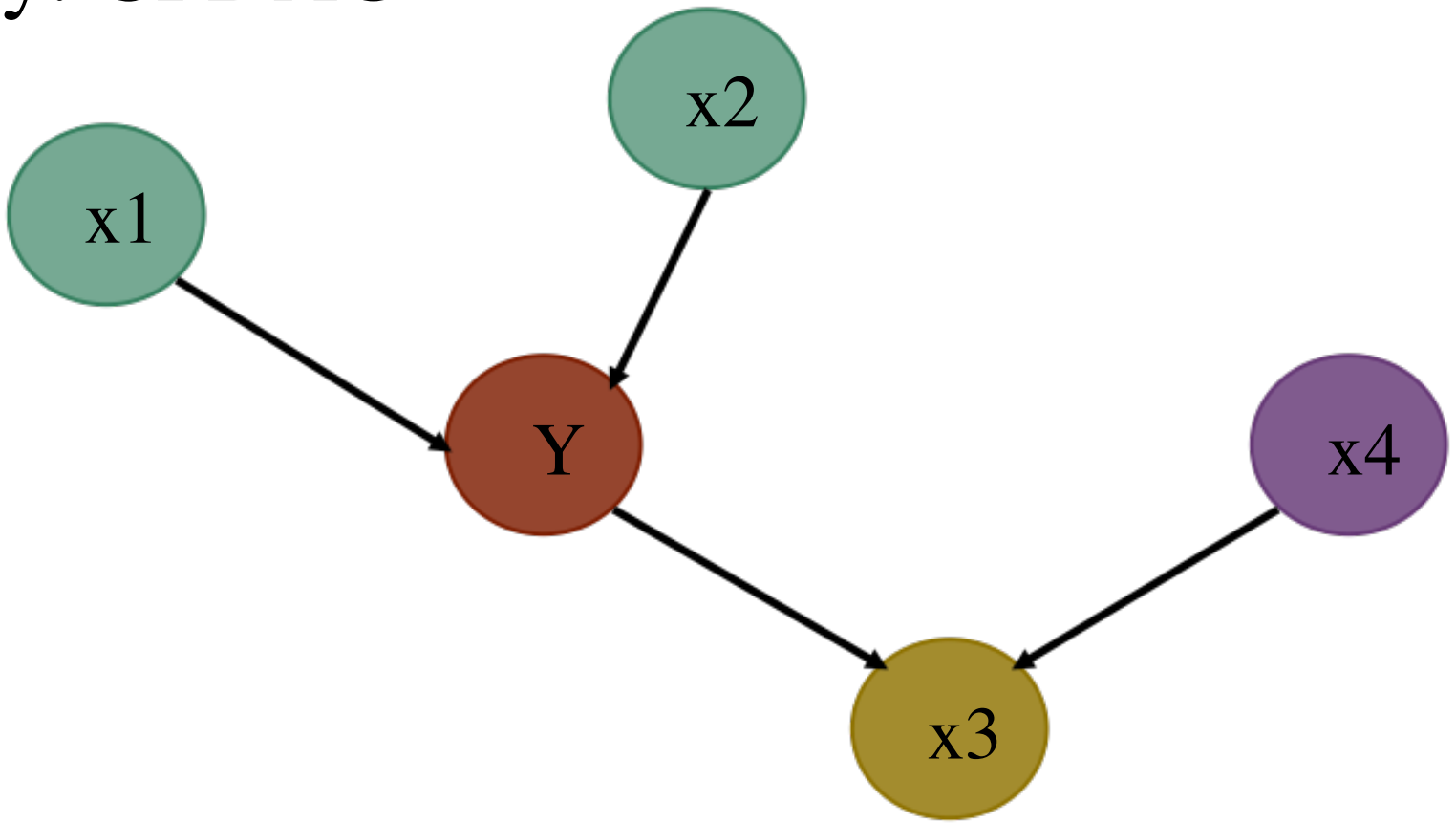
- Habitat loss for (endangered) species.
- Massive monetary lost and wasted time.
- Chicken Little scenario…

# Why causal feature selection?

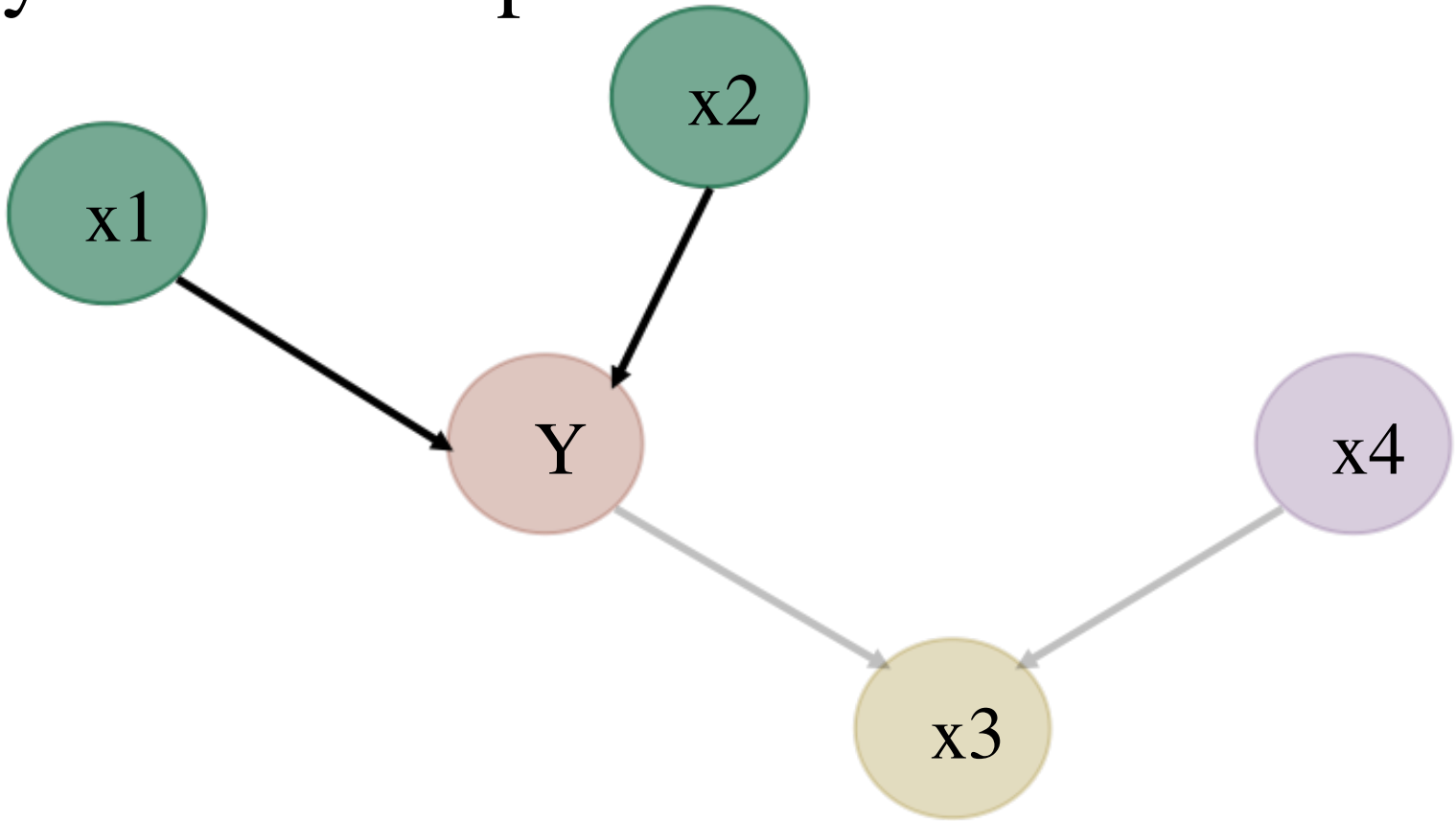
- Correlation ≠ causation.
- Helps us have a better understanding of predictions.
- Reduce combinatorial space of possible UAV initial parameters configurations.



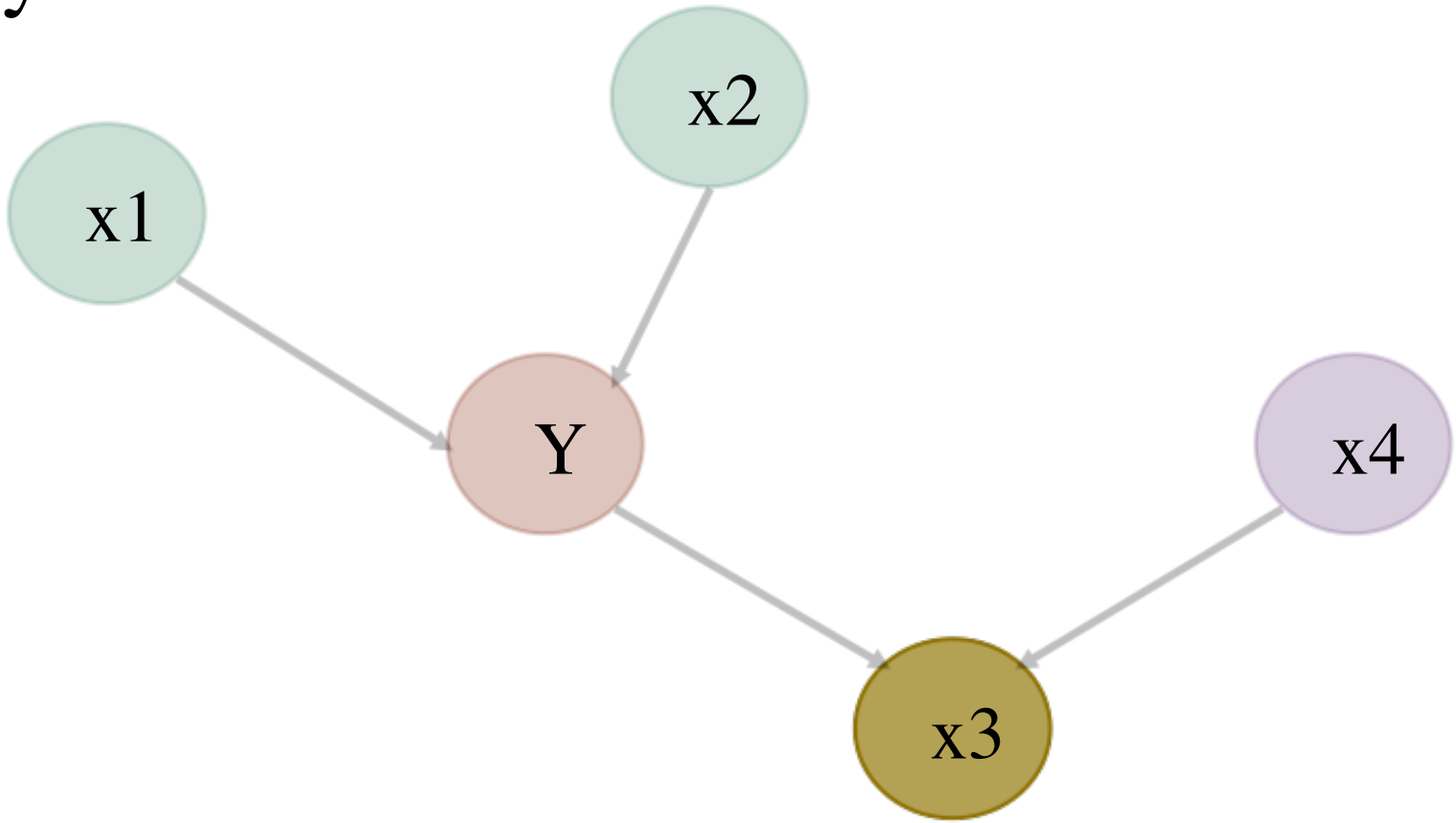
# Causality: CPDAG



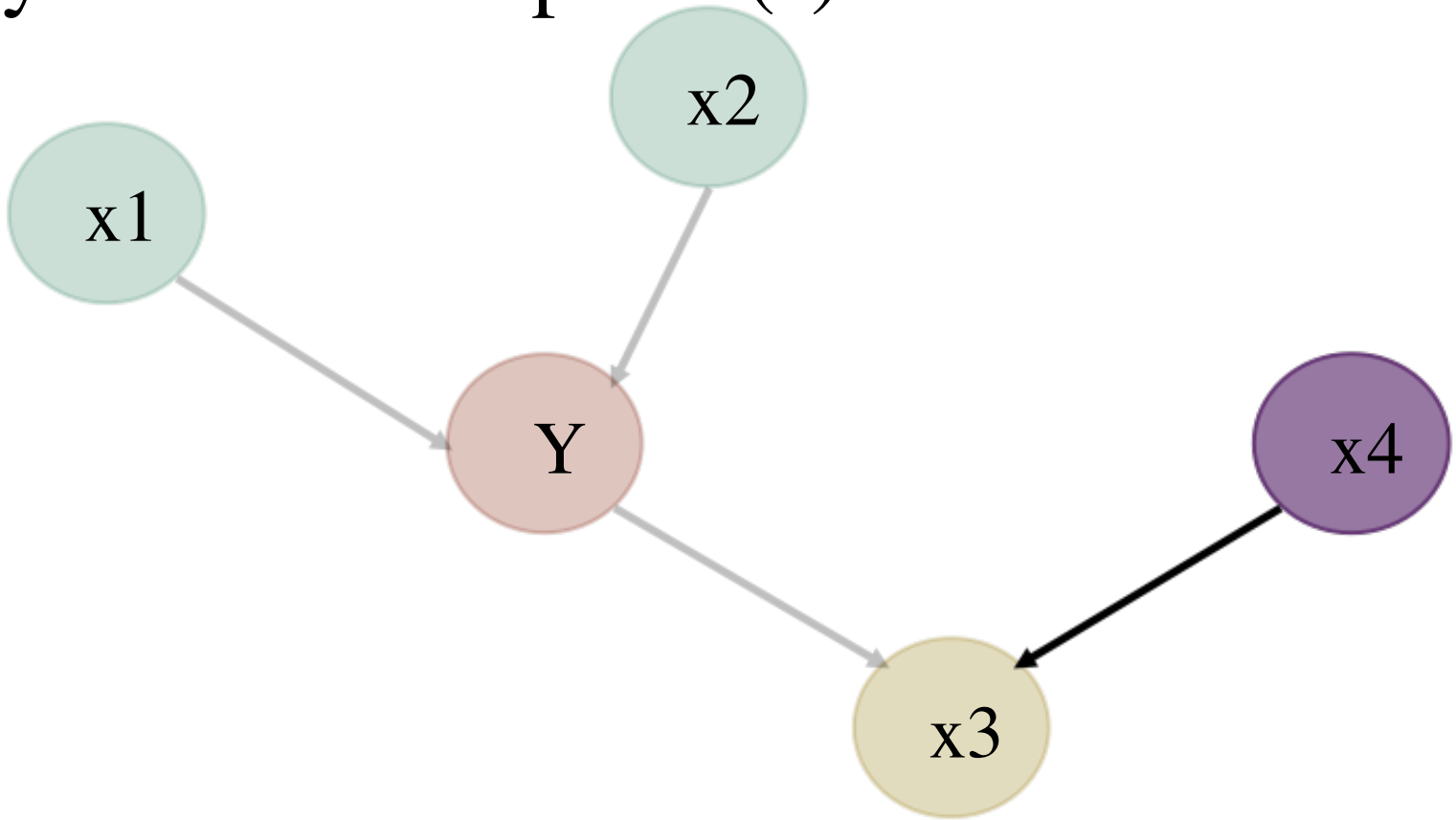
# Causality: CPDAG – parents



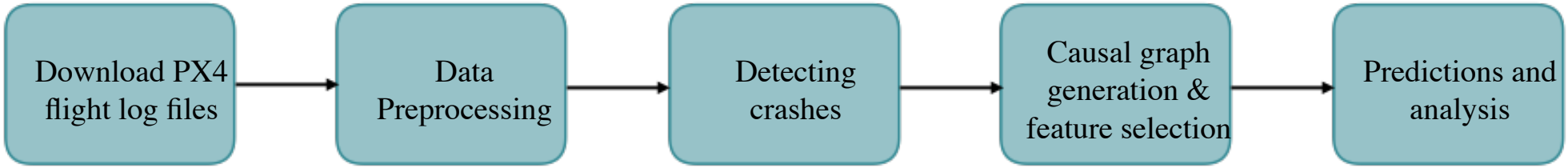
# Causality: CPDAG – children



# Causality: CPDAG – spouse(s)



# Workflow




# (Preliminary) Results

- F1 score: causal f.s.: 0.695; classical f.s.: 0.717

# Lessons & challenges