The spatial behaviour of criminal substance users

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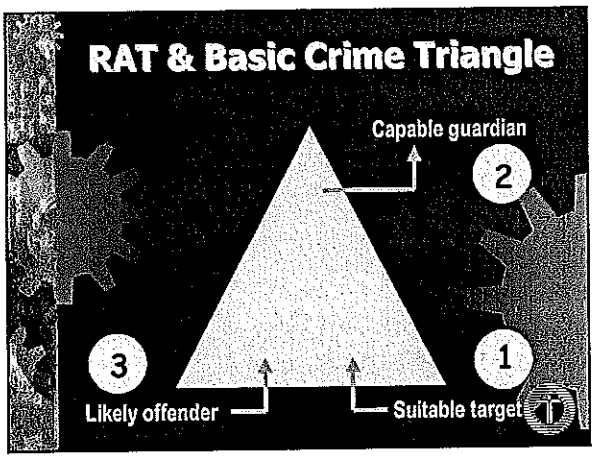
Introduction

- Crime theories
  - Routine activity theory
  - Crime pattern theory
- No literature indicating GIS use for analyzing crime theories
- Data source
- Hypotheses
- Findings
- Lessons learnt

Routine Activity Theory (RAT)

- Patterns of social interaction
- Convergence in time and space
  - Suitable targets
  - Absence of capable guardians
  - Motivated offenders
- Targets of crime: person, object, place
- Based on
  - Value
  - Inertia
  - Visibility
  - Access

RAT & Basic Crime Triangle



Crime Pattern Theory

- Interaction with physical enviro
- Movement in space and time
  - Nodes
  - Paths
  - Edges
- Nodes around personal activities (e.g. home, school, work)
- Paths - everyday activities (related to where people fall victim to crime)
- Edges are boundaries of areas
- People of different neighbourhoods converge at edges - racial attack, robbery

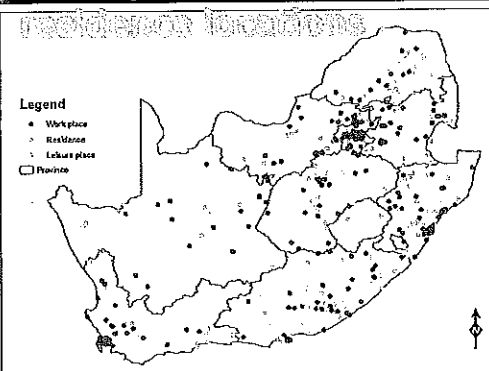
Principles of opportunity & crime

- Crime opportunities concentrated in space and time
- Crime opportunities depend on everyday movements of activity (e.g. school, work, leisure)

Data Source

- National survey of detainees
- Crime and drug data recorded
- Captured location of
  - Workplace
  - Residence
  - Leisure
- Also captured location of
  - Crime place
  - Drug obtaining place

Work, leisure and residence locations



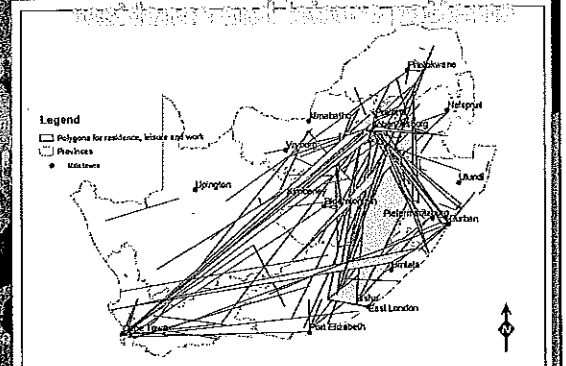
Hypotheses

- Crimes would be committed inside routine activity sphere (Crime pattern theory)
- Drugs would be obtained inside routine activity sphere

Methodology

- Merge point location records
- Calculate polygons around points based on common denominator
- Calculation: minimum polygon
- Identify records with point location for all relevant fields (e.g. work, residence, leisure)
- Assign data based on whether crime point is inside work, residence and leisure polygon

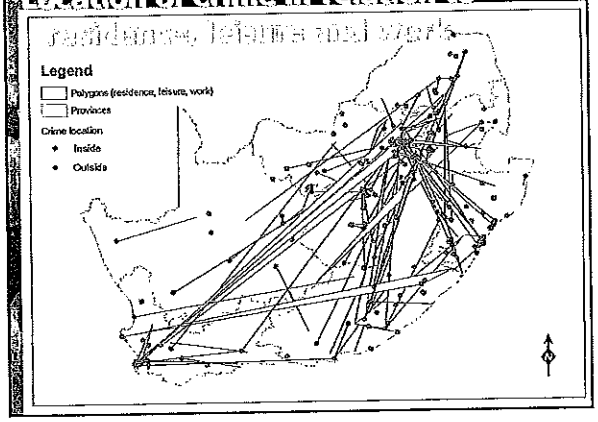
Polygons indicating work, residence and leisure locations



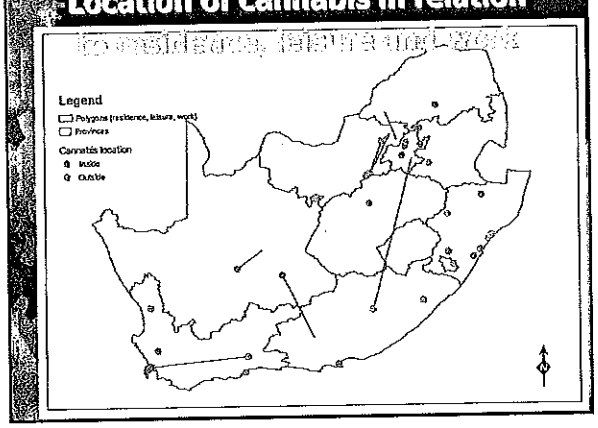
Findings

- Crime
  - 28% inside routine activity sphere
  - 72% therefore expanded the routine activity sphere
- Cannabis
  - 53% obtained inside routine activity sphere
  - 10% obtained outside routine activity
- White pipe (cannabis & mandrax)
  - 43% inside routine activity sphere
  - 57% expanded routine activity sphere

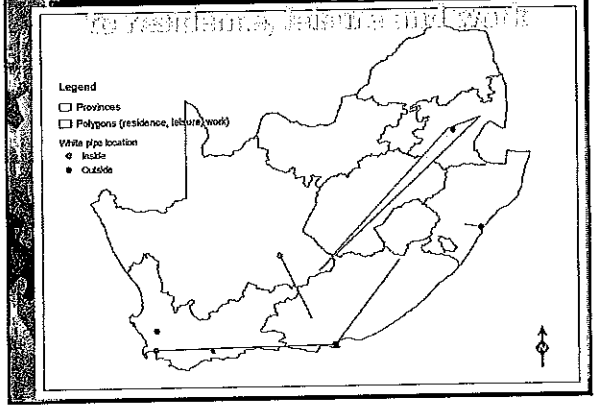
Location of crime in relation to



Location of cannabis in relation



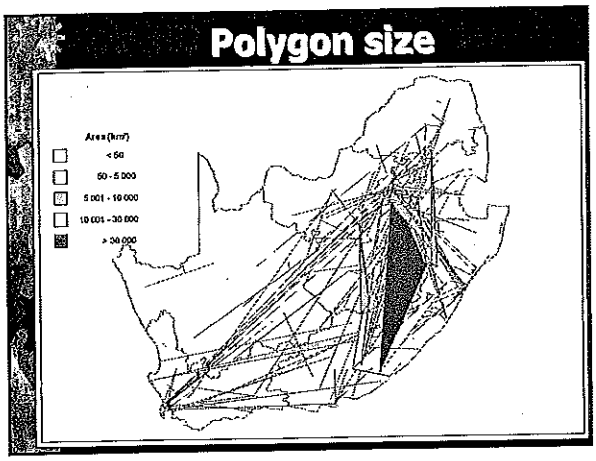
Location of white pipe in relation



Problems encountered

- Very few records with location for drugs
- Records do not have location for all 4 or 5 fields
- Polygon calculation do not include all points
- Confidence limits to be calculated

Polygon size



Lessons learnt

- Instilling geographic orientation to fieldwork teams
- Correct capturing of location
- Phrase questions correctly
- Postulate changes to international crime theories