CAPTURE-RECAPTURE METHOD - 1

primary source
of identification
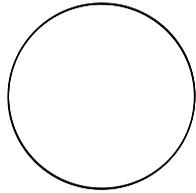
secondary source
of identification
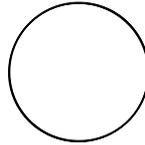
unknown population size

CAPTURE-RECAPTURE METHOD - 2

low   completeness of
ascertainment   **high**

1

n'

n1 **m** **n2**
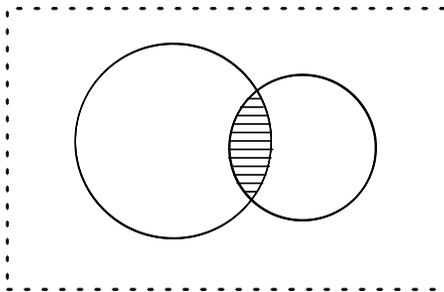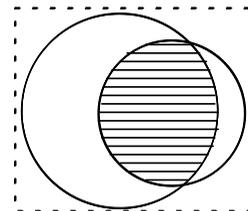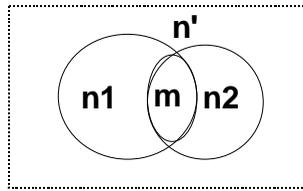
Probability to be captured by the second source

n1 **m**   **n'**   **n2**
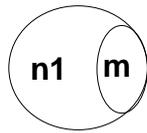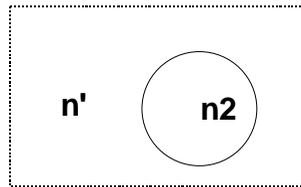
$$m/n1 \quad = \quad n2 / n'$$

$$n' = n1*n2/m$$

CAPTURE-RECAPTURE METHOD - 2

m

n1 **n2**

m
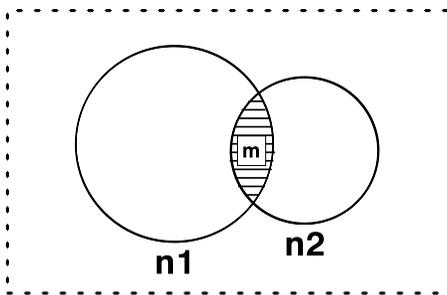
$$\frac{(n1+1)(n2+1)}{m+1} -1$$

Chapman's estimator

$$\frac{(n1+1)(n2+1)}{m+1} -1$$

low   **completeness of ascertainment**   **high**

Assumptions of the "capture-recapture" method

1) The source of ascertainment should be independent (SOURCE INDEPENDENCE).

2) The probability of ascertainment of an individual by any particular source should remain constant within the studied population (CONSTANT CATCHABILITY).

Other requirements:

3) Tags should not be lost, individuals should be matched from capture to recapture. For instance, names are not good tags to identify people in Tanzania.

4) When the sources are not simultaneously activated, the population should be closed to addition or deletions.

5) Sources of identification, in spite of low sensitivity, should have perfect specificity.

WILDLIFE BIOLOGY	EPIDEMIOLOGY
Trap dependence	Source dependence
Trap fascination or trap avoidance	Variable catchability
	Health care visibility or invisibility

"Traditional methods for monitoring diabetes are either too expensive (e.g., IDDM registries, NIDDM-OGTT prevalence surveys) or too inaccurate (routinely collected data or passive surveillance) for broad accurate, national programs for monitoring the incidence and prevalence of disease. We suggest that one technology called capture-recapture would considerably increase our ability to 'count' diabetes, both nationally and globally.

Implementation of this approach could lead to accurate inter- or intracountry data on rates of disease. Moreover, such tracking of diabetes could serve as the model for the monitoring of all diseases in the 21st century and beyond".

(LaPorte et al, Diabetes Care, 1993)