Shelter Population Index in Companion Animals:
A Multi-institutional Feasibility Study

Dr. Margaret Gruen and Dianne Dunning

This study represents a multi-institutional collaborative effort to develop statistical estimates of companion animals housed in the U.S. sheltering system, including their sources and dispositions. Three leading colleges of veterinary medicine and the American Society for the Prevention of Cruelty to Animals (ASPCA) have partnered to develop a Shelter Population Index for Companion Animals.

The stated mission of this effort is to improve community well-being and the quality of shelter animal practice by establishing a valid and consistent estimate or index of shelter dog and cat populations. By repeated collections of reliable data, the index will enable the identification of trends associated with this population over time. The specific goals of this study are to:

- Develop consistent and standardized reporting methods for animal shelters and encourage their widespread use
- Provide reliable data for decision makers and the community at large regarding progress or lack thereof toward humane solutions to the dog and cat surplus
- Strengthen the science base for shelter animal medicine and promote evidence-based protocols.
- Promote improvement of the animal sheltering system and demonstrate a correlation with community-based demographics
- Increase public awareness of the magnitude of the problem of homeless, abandoned, and marginalized dogs and cats within the U.S.


Session IV: The Math, Myth and Management of Pet Populations
Shelter Population Index
By Dr. Margaret Gruen

Shelter Population Index in Companion Animals

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Multi-institutional Feasibility Study

- Represents collaborative effort
- Three Colleges of Veterinary Medicine
  - North Carolina State University
  - Colorado State University
  - University of Tennessee
  - Texas A&M University
  - The Ohio State University
- The American Society for the Prevention of Cruelty to Animals
Mission

- Establish a valid and consistent estimate or index of shelter dog and cat populations
- Improve the quality of shelter animal practice
- Improve community well-being

Specific Goals of the Shelter Population Index (SPI)

- Develop reporting methods for animal shelters
  - Consistent
  - Feasible
  - Universal
- Provide reliable data
  - Informed decisions
- Promote evidence-based protocols
  - Strengthen the science base for shelter animal medicine
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Ultimate Goal of the SPI

- Increase public awareness of the magnitude of the problem of homeless, abandoned, and marginalized dogs and cats within the United States

Similar to the Dow Jones

- Designed to measure the performance and general health of the overall sheltering system
  - Human population weighted average

- Proposed SPI is reflection of the general health and welfare of the community it serves

- Unique opportunity to engage and partner with local animal shelters and community coalitions
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Our Study’s Approach

- Emphasize the communities’ responsibility and role
- Shelters as reflections of the surrounding communities’ initiative
  - To reduce euthanasia
  - To eliminate animal overpopulation
  - To support spay/neuter initiatives

Photo credit: WSPCA

Sources of Shelter Populations

- Both owned and free-roaming dogs and cats
  - Animal control officers
  - Humane society field officers
  - Owner-relinquished animals
  - Stray animals
  - Transfers from other organizations

Photo credit: Aaron Huey/Polaris
Dispositions of shelter populations

- Both domestic and free-roaming dogs and cats
  - Adoptions
  - Euthanasias
  - Returns to owners
  - Died/Lost in shelter
  - Transfers to other organizations

Phase I
Materials and Methods

Photo credit: Dianne Dunning

Photo credit: Barbara Sherman Simpson
Data Collection

- Individual shelters and alliances have been identified within four separate Combined Statistical Areas of human population

Phase I Data Collection and Analysis
Combined Statistical Area (CSA) Defined

- Core area containing a substantial population nucleus
  - Metropolitan-micropolitan
  - Economic and social integration

- Total 123 CSA nationwide
  - Defined by the U.S. Office of Management and Budget (11/04)

Combined Statistical Area Example: Indiana
Definition of an Animal Shelter and Associated Terminology

- Animal shelter
  - A brick and mortar facility
  - Fixed address
  - Set hours of operation
  - Provides shelter for at least 100 animals in a 12-month period
- Entry and disposition of shelter populations
  - Based upon the definitions included in the NCPPSP RFP

Shelter Inclusion Criteria

- Participating shelters
  - Demonstrate the capacity to collect annual animal statistics
    - Modified Asilomar Accords
  - Regional, socioeconomic and demographically diverse areas of the country
  - Willing to share their information
    - Letters from all participating shelters have been obtained
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SPI - Phase I

- Focused on the development of the SPI
  - Collected for one year
  - Monthly basis
- Comprised of
  - Qualitative/Descriptive data sets
  - Quantitative data sets
    - Modified from the Asilomar Accords

Qualitative Data Collection

- Will be used to further characterize the human and animal populations influencing the population statistics
  - Animal characteristics
    - Age
      - Juvenile vs. Adult
    - Status
      - Stray vs. Owned
    - Disposition
Qualitative Data Collection

- Owner demographics of those adopting or relinquishing animals
  - Age
  - Gender
  - Ethnicity
  - Family status
  - State and city of residence
  - Presence of children within household
  - Income category
  - Education level

Qualitative Data Example

<table>
<thead>
<tr>
<th>Shelter Population Index</th>
<th>Study Questions/Inc.</th>
<th>Adoptions</th>
<th>Surrenders</th>
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<td>Ethnicity</td>
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<td>State and city of residence</td>
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<tr>
<td>Presence of children within household</td>
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<tr>
<td>Education level</td>
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</tbody>
</table>

Key
- Adoptions
- Surrenders

Proceedings of the Third International Symposium on Non-Surgical Contraceptive Methods for Pet Population Control • www.acc-d.org
Informed Consent

Shelter Population Index Study Information

Background
The purpose of this study is to collect information on the number of dogs and cats entering and leaving animal shelters across the United States. This study is being funded by the National Council of Pet Population Study and Policy, and represents the efforts of feminists or various organizations involved in the reduction of pet populations. The study involves the collection of data from shelters throughout the United States on several key variables, including intake, transfers, and adoptions. The data will be used to help identify trends and develop strategies for reducing pet populations.

Your Participation
We are asking people who are adopting or picking up animals to fill out a brief anonymous survey to help us understand the characteristics of the community that they are serving. Your answers will be analyzed anonymously with those of many other clients of the shelter as well as with those from shelter customers from other parts of the country. We suggest you allow about 5 minutes to complete the brief questionnaire (please do not participate if you do not wish to do so).

By completing the questionnaire, you are indicating that you are participating voluntarily. No signature or other form of identification is required, so your responses will be anonymous and confidential. Your participation is very important to us, and we hope to develop better ways to understand the needs of our communities. The questions asked in the survey will not affect the services you are receiving from the shelter. If you have any questions regarding this questionnaire, please contact cm economics@nrcu.edu. Thank you.

Shelter-Based Data Collection

- Intakes
  - Stray
  - Owned
- Transfers
  - To/from outside organizations
- Adoptions
- Returns to owners
- Euthanizations
- Stratified by species
Shelter-Based Data Collection

Statistical Analysis

- Data being entered into Microsoft Access
- Frequency and descriptive statistics
  - Statistical Package for the Social Scientist (SPSS) and graphing software
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Example SPI Calculation

- Raleigh-Durham-Chapel Hill CSA has a total population of 1,187,941 people
- Total human population for all 123 CSAs is 177,395,674
- The population weight of the Raleigh-Durham-Chapel Hill CSA will be 1,187,941/177,395,674 or 0.0067

* Based on 2000 U.S. Census Bureau Data

Calculation of the SPI

- A population weight for each CSA will be used similar to the above example
- Shelter data for each CSA will be multiplied by that population weight to give a population weighted estimate
- This estimate will then be used to calculate the final index
Annual Live Release Rate

- **Total live outcomes / Total outcomes**
- **Total live outcomes**
  - Adoptions, outgoing transfers, and return to owner/guardian
- **Total outcomes**
  - Total live outcomes plus euthanasia
    - Not including owner/guardian requested euthanasia or died/lost in shelter
- **Unhealthy/untreatable/unmanageable animals will be considered separately**
  - The annual live release rate will be calculated with and without this category

Comparisons

- **National population vs. CSA population**
- **Animal characteristics vs. animals in households**
  - Previous studies
- **Differences among CSAs**
Census Data Comparisons

- Public record
  - Easily accessible
  - Allows for direct comparison
    - Between CSAs
    - Between shelter data and the surrounding community
- Determine who the shelter is serving
- How to access underrepresented groups
- Where to direct resources

Census Tables Example

- Ability to compare demographic data between areas
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Validation and Reliability

- Comparison between the 4 CSAs
- Comparison with previously reported results
- Qualitative comparison
  - Expert opinion
  - Independent review

Project Limitations

- **Availability and accessibility of data:**
  - Exclusion of smaller and potentially more rurally located shelters
  - Limitations in data acquisition
  - Smaller intake numbers
  - Data bias in favor of accurate numbers

- **Species-specific:**
  - This SPI is species-specific and thus limited to dogs and cats only
Time Frame for Initial Development of the SPI Model:

- **16 months** from the starting date

Specific Timeline for Completion for Phase I

- **Month 1-2**
  - Confirmed and finalized shelter partner participation
  - Thorough review of data to be collected
  - Initiated data collection
    - Beta/pilot testing
Specific Timeline for Completion for Phase I

**Months 3-14:**
- Data collection ongoing
  - Over 1,800 demographic forms entered
- Preliminary analysis of SPI in month 8 of the project
  - Halfway through the data collection year

**Month 15-16**
- Final report and distribution of the SPI

Early Results from Demographic and Shelter Data: North Carolina

- 821 demographic forms
  - 467 adoptions
  - 354 surrenders
  - 80% from two largest shelters

- Animal statistics:
  - 470 Dogs
  - 347 Cats
Early Results from Demographic and Shelter Data: North Carolina

- **Animal ages**
  - Dogs: 377 data points
    - 59% less than one year old
    - 31% between 1-3 years
    - 10% greater than 3 years
  - Cats: 340 data points
    - 72% less than one year old
    - 22% between 1-3 years
    - 6% greater than 3 years

Phase II

- The SPI will be expanded to all nine census divisions
- Web-based system
  - Online data entry
  - Analysis and reporting
Web-Based Data Entry, Analysis and Reporting—Shelter Statistics

- Varied needs and ability
  - Computer access
  - Rural locations

- Data entry
  - Password protected
  - Individual login for each shelter
  - Ability to enter Monthly Animal Statistics
  - Automatic e-mail reminders to each shelter

- Analysis
  - Information funnels to database
  - Able to analyze directly, or import to SPSS

- Reporting
  - Results distributed and displayed on NCPPSP website

Research Team

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Questions/Comments?