

PRESENTATION SUMMARY & POWERPOINT

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.

Principal and Co-Principal Investigators: Dianne Dunning, Mo Salman, John C. New, and Stephen L. Zawistowski

Support: The National Council on Pet Population Study and Policy

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Shelter Population Index

By Dr. Margaret Gruen

Shelter Population Index in Companion Animals

Margaret Gruen, DVM
Animal Welfare, Ethics and Public Policy Program
College of Veterinary Medicine
North Carolina State University
Raleigh, NC



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



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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



Photo credit: Barbara Sherman Simpson

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



Photo credit: Barbara Sherman Simpson

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



Photo credit: Dianne Dunning

Phase I Materials and Methods



Photo credit: Barbara Sherman Simpson

Data Collection

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

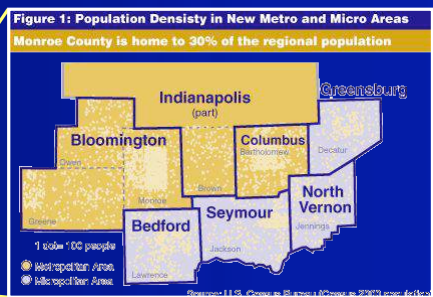
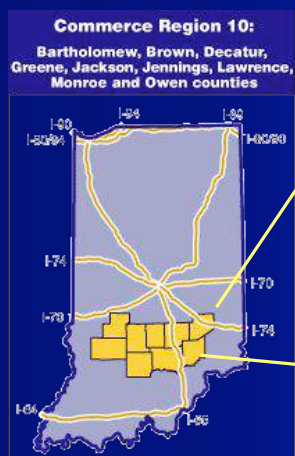
Phase I Data Collection and Analysis



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



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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

Shelter Population Index Study Questionnaire
 NCSU College of Veterinary Medicine

ADOPTIONS

Are you adopting a: (check all that apply)
 Dog(s) Number if more than one: _____ Estimated age(s): _____
 Cat(s) Number if more than one: _____ Estimated age(s): _____

The following information will be used for comparison with similar information from the community that is available from the U.S. Census Bureau. No identifying information will be used when comparing this information to you. You do not need to put a name or any other way of identifying yourself on this questionnaire. All questions refer to the person filling out this form.

1 Gender:	<input type="checkbox"/> Male <input type="checkbox"/> Female
2 Age at last birthday:	
3 Which one of the following best describes your household?	<input type="checkbox"/> Single without children under 18 yrs. <input type="checkbox"/> Single with children under 18 yrs. <input type="checkbox"/> Married without children under 18 yrs. <input type="checkbox"/> Married with children under 18 yrs. <input type="checkbox"/> Same-sex partners without children under 18 yrs. <input type="checkbox"/> Same-sex partners with children under 18 yrs. <input type="checkbox"/> Other (please describe): _____
4 Number of people in household:	
5 Household consists of:	<input type="checkbox"/> Related individuals <input type="checkbox"/> Unrelated individuals <input type="checkbox"/> Combination of related and unrelated individuals
6 Race/ethnicity of household:	<input type="checkbox"/> White alone (non-Hispanic) <input type="checkbox"/> Black or African American alone <input type="checkbox"/> American Indian or Alaska Native alone <input type="checkbox"/> Native alone <input type="checkbox"/> Native Hawaiian or other Islander alone <input type="checkbox"/> Hispanic or Latino alone <input type="checkbox"/> Other race alone <input type="checkbox"/> Two or more races
7 Do you rent or own your living space?	<input type="checkbox"/> Rent <input type="checkbox"/> Own
8 Which of the following best describes the population of your community?	<input type="checkbox"/> Less than 2,500 people <input type="checkbox"/> 2,500-50,000 people <input type="checkbox"/> More than 50,000 people
9 Household income per year (before taxes):	<input type="checkbox"/> Less than 10,000 <input type="checkbox"/> 35,000-39,999 <input type="checkbox"/> 100,000-124,999 <input type="checkbox"/> 10,000-14,999 <input type="checkbox"/> 40,000-44,999 <input type="checkbox"/> 125,000-149,999 <input type="checkbox"/> 15,000-19,999 <input type="checkbox"/> 45,000-49,999 <input type="checkbox"/> 150,000-199,999 <input type="checkbox"/> 20,000-24,999 <input type="checkbox"/> 50,000-54,999 <input type="checkbox"/> 200,000 or more <input type="checkbox"/> 25,000-29,999 <input type="checkbox"/> 60,000-74,999 <input type="checkbox"/> 30,000-34,999 <input type="checkbox"/> 75,000-99,999
10 Education level of person completing the questionnaire:	<input type="checkbox"/> Less than 8 th grade <input type="checkbox"/> Some high school, no diploma (or equivalent) <input type="checkbox"/> High school graduate (or equivalency) <input type="checkbox"/> Some college, no degree <input type="checkbox"/> Associate degree <input type="checkbox"/> Bachelor's degree <input type="checkbox"/> Graduate or professional degree

Key

Adoptions

Surrenders

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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. The study is being funded by the National Council on Pet Population Study and Policy, and represents the efforts of three Colleges of Veterinary Medicine (listed below) and the American Society for the Prevention of Cruelty to Animals (ASPCA), as well as several shelters across the country. Our goal is to improve reporting methods in animal shelters and promote public awareness about the surplus of dogs and cats in our communities. Participating shelters are collecting daily information on the population of animals coming to and leaving their facility.

Your Participation

We are asking people who are adopting or giving up animals to fill out a brief anonymous survey to be used for comparison with characteristics of the community that the shelter serves. Your answers will be combined 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 hope you will take about 5 minutes to complete the brief questionnaire provided.

By completing the questionnaire, you are indicating that you are participating voluntarily. No signature or other form of identity is required so your responses will be anonymous and confidential. Your participation is very important to us and will help us develop better ways to lower the number of dogs and cats in our community that need good homes. However, if you choose not to participate, it will have no effect on the services you are seeking from the shelter you are visiting today. If you have any questions regarding this questionnaire or the study, please contact cvm_awepo@ncsu.edu. Thank you.

Dianne Dunning, DVM, MS, DACV/S
Clinical Associate Professor and Director
Animal Welfare, Ethics and Public Policy
College of Veterinary Medicine
North Carolina State University
4700 Hillsborough Street
Raleigh NC 27606-1499

Mo Saiman, BVMS, MPVM, PhD, DACVPM,
F.A.C.E.
Professor and Director
Animal Population Health Institute (APHI)
College of Veterinary Medicine and
Biomedical Sciences
Colorado State University
1651 Campus Delivery
Fort Collins, Colorado 80523-1681

John C. New, Jr., DVM, MPH, DACVPM
Professor and Head
Department of Comparative Medicine
College of Veterinary Medicine
University of Tennessee
2407 River Drive, Room A205
Knoxville, TN 37996-4543

Stephen L. Zawistowski, AM, PhD
Certified Applied Animal Behaviorist (Animal
Behavior Society)
Senior Vice President and Science Advisor
The American Society for the Prevention of
Cruelty to Animals
441 East 82nd Street
New York, NY 10128-6801

Funded by the National Council on Pet Population Study and Policy

Shelter-Based Data Collection

- Intakes
 - Stray
 - Owned
- Transfers
 - To/from outside organizations
- Adoptions
- Returns to owners
- Euthanasias
- Stratified by species



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Shelter-Based Data Collection

Monthly Animal Statistics Table*

Shelter Code: _____ Month _____ Year _____
(To be entered by the PI)

Category	Column	Row	Page	Col	Total
A	BEGINNING SHELTER COUNT <i>(Date to be indicated on a daily basis, from the first day of the month to the last and submitted monthly)</i>				
INTAKE (Use Flags & Check Only)					
B	Brought in by animal control - Owner unknown				
C	Brought in by animal control - Owner relinquished				
D	Brought in by owner - Owner unknown				
E	Transfer from other organization				
F	Legal custody				
G	Owner Guardian - relinquished				
H	Lost Pet/stray found				
I	Owner/Guardian Reported Stray/Lost				
J	Total Intake				
K	ADOPTIONS				
L	OUTGOING TRANSFERS to Organizations within the USA Community				
M	OUTGOING TRANSFERS to Organizations outside the USA Community				
N	RETURN TO OWNER/GUARDIAN				
DOGS & CATS EUTHANIZED					
O	Health - Owner requested				
P	Health - Shelter				
Q	Unadopted and/or Unmanageable - Shelter (including behavior)				
R	Unadopted and/or Unmanageable - Owner requested (including behavior)				
S	Feral				
T	Total Euthanized				
U	DIED OR LOST IN SHELTER CARE				
V	TOTAL OUTCOMES				
W	ENDING SHELTER COUNT <i>(Date)</i>				

* Modified from the Avianax Records

Statistical Analysis

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



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

Relevant Tables from US Census Data 2000

Area 1: Denver - Aurora - Boulder, CO Combined Statistical Area (CSA)
 Area 2: Knoxville Sevierville - La Follette, TN CSA
 Area 3: New York - Newark - Bridgeport, NY - NJ - CT - PA CSA
 Area 4: Raleigh - Durham - Cary, NC CSA

P1. TOTAL POPULATION [1] - Universe: Total population
 Data Set: Census 2000 Summary File 1 (SF 1) 100-Percent Data

	United States	Area 1	Area 2	Area 3	Area 4
Total	281,421,906	2,581,506	687,249	21,199,865	1,187,941

U.S. Census Bureau
 Census 2000 *

P2. URBAN AND RURAL [6] - Universe: Total population
 Data Set: Census 2000 Summary File 1 (SF 1) 100-Percent Data

	United States	Area 1	Area 2	Area 3	Area 4
Total:	281,421,906	2,581,506	687,249	21,199,865	1,187,941
Urban:	222,360,539	2,418,922	485,131	20,484,236	892,889
Inside urbanized areas	192,323,824	2,324,381	419,630	20,283,478	830,537
Inside urban clusters	30,036,715	94,541	65,301	200,756	62,352
Rural	59,061,367	162,584	202,118	715,629	295,052
Filler	0	0	0	0	0

U.S. Census Bureau
 Census 2000 *

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

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Time Frame for Initial Development of the SPI Model:

- **16 months** from the starting date



Photo credit: Barbara Sherman Simpson

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



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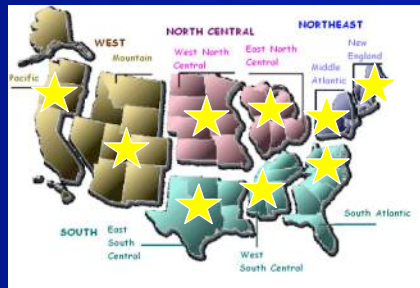
Early Results from Demographic and Shelter Data: North Carolina

- 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



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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

- Dianne Dunning, DVM, MS, DACVS
College of Veterinary Medicine
North Carolina State University
- Mo Salman, BVMS, MPVM, PhD, DACVPM, F.A.C.E.
College of Veterinary Medicine and Biomedical Sciences
Colorado State University
- John C. New, Jr., DVM, MPH, DACVPM
College of Veterinary Medicine
University of Tennessee
- Stephen L. Zawistowski, AM, PhD
The American Society for the Prevention of Cruelty to Animals
- Rebecca Ruch-Gallie, DVM, MS
College of Veterinary Medicine and Biomedical Sciences
Colorado State University
- Teresa Jennings
The University of Tennessee
College of Veterinary Medicine
- Celia Antagnoli
Colorado State University
- Margaret Slater, DVM, PhD
College of Veterinary Medicine and Biomedical Sciences
Texas A&M University
- Thomas Wittum, MS, PhD
College of Veterinary Medicine
Ohio State University

Questions/Comments?

