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SPECIAL REPORTs:
— LITTMAN/HENTHORN
AKC-CHF Grant Approved!
— Dr. Meryl Littman’s
Presentation @ GW2010!

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FROM THE EDITOR . . .

This has been an exciting year in Health Research for our breed. After many years of looking for a project that could give us answers into the devastating diseases of PLN, we are excited to announce a new research project that has been approved and funded by the AKC Canine Health Foundation. This project will be undertaken by Dr. Meryl Littman and Dr. Paula Henthorn from the University of Pennsylvania. We have devoted much of this issue to their project and will be featuring updates in every issue of Wheaten HealthNews. This project holds much promise for answers but will require owners and breeders to step forward to provide the biopsies our researchers will need. We will have further details as the research begins in 2011.

After much discussion, we will also be moving forward with the NIH 10-Year Study of SCWTs. New information is in the current issue; and project liaison, Helen Moreland, will be offering updates via the breed lists and in Wheaten HealthNews. We will be organizing new DNA Collection Clinics in 2011. And we continue to beg for people to complete the CPP Study info on their dogs!

As you celebrate the holidays, please consider how you can make a difference in the lives of our dogs . . .; donate to one of our health funds; collect and store DNA on your dogs through the Canine Phenome Project and, if eligible, with the NIH; help with Wheaten rescue; or volunteer to be on a committee with your local or national club. On a personal note, my heartfelt thanks to Roxanna Springer, Carol Carlson, Elaine Azerolo, and Robyn Alexander for their contributions and support . . . I couldn’t do it without all of you.

Merry Christmas, Happy Holidays and Best Wishes for a Happy, Healthy New Year!
For the love of the dogs..., 

—CECYL SKINNER
THE OPEN REGISTRY & THE DNA BANK FOR SOFT COATED WHEATEN TERRIERS AT THE UNIVERSITY OF PENNSYLVANIA SCHOOL OF VETERINARY MEDICINE

— MERYL P. LITTMAN, VMD, DACVIM AND AMY J. SMAGALA, MLAS

INTRODUCTION:

Since 1983, a number of familial diseases in the Soft Coated Wheaten Terrier breed have been recognized that may be described under the umbrella of hypersensitivity, immune-mediated, or inflammatory diseases. These include food allergies, inflammatory bowel disease (IBD), protein-losing enteropathy (PLE), protein-losing nephropathy (PLN), and Addison’s disease (AD). The breed is also predisposed to renal dysplasia (juvenile renal disease, RD).

We first described 33 SCWT dogs with PLE and/or PLN in 1990. The dogs were related to a common male ancestor that died with evidence of a saddle thrombus, a thromboembolic event that suggests the dog may have been affected with PLE and/or PLN which can cause hypercoagulopathy. By 2000, the number of SCWTs described with the syndrome PLE and/or PLN reached 222 dogs. By August 2009, consultations for diagnosis and management of sick Wheatens (requested by fax, email/mail, phone, or visit at Penn) documented more than 1000 Wheatens to be affected with PLN (460 dogs), IBD or PLE (249 dogs), sequential or combined PLE/PLN (226 dogs), Addison’s disease (80 dogs), renal dysplasia (51 dogs), or incompletely characterized renal failure (RF) before 8 years of age (41 dogs). Veterinarians need to be aware of the genetic predispositions in the breed, especially the immunodysregulation disorders that comprised more than 90% of the requested consultations. Currently there are no genetic markers or predictive tests, so annual screening tests are recommended to find early warning signs before dogs become ill, so that interventions can be started (diet and medication). Since the clinical signs of these diseases may mimic one another at presentation of a sick dog, characterization of the specific diagnosis by further testing is important.

METHODS:

The clinical diagnosis for IBD/PLE, PLN, RD, Addison’s disease, and/or incompletely diagnosed renal failure (RF) at a relatively young age (8 yrs or less) was based on the clinical findings including history, physical examination, and diagnostic tests, e.g., clinical pathology, adrenal function tests, histopathology, ± serology/imaging/etc., as necessary. Criteria for inclusion of an affected dog on the Open Registry required permission from the owner(s) and documentation by blood (Bl), urine (U), and/or histopathology (Bx) of abnormalities as follows:

PLE: PROTEIN-LOSING ENTEROPATHY
- Bl: panhypoproteinemia without evidence of hemorrhage or other causes.
- U: absence of proteinuria.
- Bx: intestinal lesions characteristic of PLE (e.g., inflammatory bowel disease, lymphangitis, lymphangiectasia).

IBD: INFLAMMATORY BOWEL DISEASE
- Bx: changes as for PLE but without panhypoproteinemia (if bloodwork available).

PLN: PROTEIN-LOSING NEPHROPATHY
- Bl: hypoalbuminemia without hypoglobulinemia, ± azotemia.
- U: proteinuria (by urinalysis, SSA, microalbuminuria, or urine protein/creatinine ratio), inactive sediment, and no other cause for proteinuria other than glomerular leakage.

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• Bx: renal lesions characteristic of PLN (e.g., glomerulonephritis, glomerulosclerosis).

PLE/PLN: including criteria of both PLE and PLN, i.e., PANHYPOPROTEINEMIA, PROTEINURIA, AND/OR CHARACTERISTIC INTESTINAL AND RENAL HISTOPATHOLOGIC LESIONS.

RD: RENAL DYSPLASIA OR JUVENILE RENAL DISEASE
• Bl: changes of renal failure without hypoalbuminemia.
• U: decreased urine specific gravity.
  • Bx: renal lesions associated with RD (fetal glomeruli, fetal mesenchyme).
  • R: (Radiograph or ultrasound): small kidneys at a very young age.

RF: RENAL FAILURE, INCOMPLETELY DIAGNOSED, AGED 8 YEARS OR LESS
• Bl: changes of renal failure without hypoalbuminemia.
• U: decreased urine specific gravity.
• Bx: abnormal but not classic for PLN or RD (possibly end-stage kidneys).

ADDISON’S DISEASE:
• Bl: low Na/K ratio (typical), flat/low ACTH stimulation test results.

Clinical features of the most common of these diseases are compared in Table 1 (below).

Table 1: Comparisons of Clinical Features of Genetic Diseases in SCWT Dogs

<table>
<thead>
<tr>
<th>Symptoms/Condition</th>
<th>RD</th>
<th>ADDISON’S</th>
<th>PLE</th>
<th>PLE/PLN</th>
<th>PLN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of Onset (Mean, in Years)</td>
<td>1.3 yrs</td>
<td>4.0 yrs</td>
<td>5.7 yrs</td>
<td>6.1 yrs</td>
<td>7.1 yrs</td>
</tr>
<tr>
<td>Sex Predilection (Female:Male)</td>
<td>F:M = 0.8</td>
<td>F:M = 4.0</td>
<td>F:M = 1.4</td>
<td>F:M = 1.5</td>
<td>F:M = 1.9</td>
</tr>
<tr>
<td>Pu/Pd</td>
<td>Yes</td>
<td>Isosthenuria ± (medullary washout)</td>
<td>No, unless on steroids</td>
<td>As PLE and PLN</td>
<td>In 25%</td>
</tr>
<tr>
<td>Vomiting and/or Diarrhea</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Ascites/Edema</td>
<td>No</td>
<td>No</td>
<td>±</td>
<td>±</td>
<td>±</td>
</tr>
<tr>
<td>Azotemia</td>
<td>Yes</td>
<td>± (pre-renal)</td>
<td>No</td>
<td>±</td>
<td>±</td>
</tr>
<tr>
<td>Kidney Size</td>
<td>Small</td>
<td>Normal</td>
<td>Normal</td>
<td>Often normal</td>
<td>Often normal</td>
</tr>
<tr>
<td>Serum Albumin</td>
<td>Normal</td>
<td>± Low (GI ulceration)</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Serum Globulin</td>
<td>Normal</td>
<td>± Low (GI ulceration)</td>
<td>Low</td>
<td>Low</td>
<td>Normal</td>
</tr>
<tr>
<td>Serum Cholesterol</td>
<td>Normal</td>
<td>± Low</td>
<td>Often Low</td>
<td>Anywhere</td>
<td>Often High</td>
</tr>
<tr>
<td>Na/K ratio</td>
<td>Normal</td>
<td>Low (typically)</td>
<td>± Low in 10%</td>
<td>As PLE and PLN</td>
<td>± Low in 10%</td>
</tr>
<tr>
<td>Urine Specific Gravity</td>
<td>Low</td>
<td>Isosthenuria</td>
<td>± Low or inappropriate</td>
<td>Normal Mean 1.033</td>
<td>As PLN Mean 1.023</td>
</tr>
<tr>
<td>Proteinuria</td>
<td>± Mild</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Histopathology (K = kidney) (I = intestine) (K) = Fetal</td>
<td>glomeruli, fetal mesenchyme</td>
<td>Small adrenal glands</td>
<td>(I) = IBD, lymphangiectasia, lymphangitis</td>
<td>As for PLE and PLN</td>
<td>Glomerulonephritis, glomerulosclerosis</td>
</tr>
</tbody>
</table>

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OPEN REGISTRY:
At the request of the SCWT Club of America and SCWT Association of Canada, an Open Registry (OR) was started in 1997. Normalcy cannot be predicted (there is no age limit), so the OR only lists affected dogs. Owners of affected dogs having confidential consultations at Penn were asked to give permission to have their dogs listed. By August 2009, the OR listed 856 affected dogs (see Table 2). The SCWT Open Registry lists dogs affected with IBD, PLE, PLN, PLE/PLN, Addison’s disease, renal dysplasia, or uncharacterized renal failure at a relatively young age (8 yrs or less), based on documentation from blood (Bl), urine (U), and/or histopathology (Bx) results. Listed are the dog’s registration name/number, call name, sire/dam, dates of birth/death, age of onset, sex, diagnosis, and methods of documentation. Comments note if a littermate, sire, dam, or offspring is also listed. The OR was started in an effort to share health information among breeders, to stop rumors about which dog had what disease, to have standardization of criteria for diagnosis, to educate breeders/owners/veterinarians about these diseases and their prevalence in the breed, to study patterns of inheritance, and to find informative families for study. The mode of inheritance of PLE/PLN appears complicated. Multiple genes, variable expression, and possibly environmental triggers are suspected. The increased risk for female Wheatens for PLE, PLN, PLE/PLN and Addison’s disease agrees with the finding of higher female risk in other species for immune-mediated diseases.

DNA BANK:
Penn’s SCWT DNA bank was begun in 2000 and now has more than 500 samples. Included are frozen whole blood or tissue samples from affected dogs, members of several informative families including Dr. Shelly Vaden’s Wheagle colony at NCSU, frozen puppy tails/dewclaws saved by conscientious breeders, and geriatric non-affected Wheatens. Samples sent in from puppies or normal dogs less than 14 years of age will not be used for study until their phenotype is known. Such dogs need to be followed carefully throughout their lives, with proper documentation of diagnosis, so that the correct phenotypic characterization can be eventually associated with each dog’s DNA sample. Geriatric dogs are considered phenotypically normal for the diseases of interest based on blood, urine, and/or biopsy, and having reached their 14th year of life. Ongoing studies of the genetic areas of interest include especially the immunity-related genes (MHC, DLA, DQA), SNP chip analysis, and karyotype of affecteds vs. geriatrics.

Table 2: SCWT Open Registry Statistics (as of August 2009)

<table>
<thead>
<tr>
<th>CONDITION/GENDER</th>
<th>FEMALES</th>
<th>MALES</th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLN ONLY</td>
<td>232</td>
<td>127</td>
<td>359</td>
</tr>
<tr>
<td>PLN/ADDISON’S</td>
<td>9</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>PLN/RF</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>242</strong></td>
<td><strong>130</strong></td>
<td><strong>372</strong></td>
</tr>
<tr>
<td>PLN average age onset = 7.1 years, Ratio F:M = 1.9</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| PLE ONLY | 102 | 72 | 174 |
| IBD ONLY | 8   | 7  | 15  |
| PLE/ADDISON’S | 2   | 0  | 2   |
| IBD/RD   | 1   | 0  | 1   |
| PLE/RD   | 1   | 0  | 1   |
| **TOTALS** | **114** | **79** | **193** |
| PLE average age onset = 5.7 years, Ratio F:M = 1.4 |
PLE/PLN | 107 | 72 | 179
PLE/PLN/ADDISON’S | 1 | 0 | 1
PLE/PLN/RF | 1 | 0 | 1
**TOTALS** | 109 | 72 | 181

PLE/PLN average age onset = 6.1 yrs, Ratio F:M = 1.5

ADDISON’S ONLY | 23 | 24 | 47
ADDISON’S/PLE | 2 | 0 | 2
ADDISON’S/PLN | 9 | 2 | 11
ADDISON’S/PLE/PLN | 1 | 0 | 1
ADDISON’S/RD | 0 | 1 | 1
ADDISON’S/RF | 1 | 0 | 1
**TOTALS** | 36 | 27 | 63

ADDison’s average age onset = 4.0 yrs, Ratio F:M = 4.0

RD ONLY | 16 | 21 | 37
RD/ADDISON’S | 0 | 1 | 1
RD/IBD | 1 | 0 | 1
RD/PLE | 1 | 0 | 1
**TOTALS** | 18 | 22 | 40

RD average age onset = 1.3 yrs, Ratio F:M = 0.8

RF ONLY | 13 | 13 | 26
RF/ADDISON’S | 1 | 0 | 1
RF/PLN | 1 | 1 | 2
RF/PLE/PLN | 1 | 0 | 1
**TOTALS** | 16 | 14 | 30

RF average age onset = 4.2 yrs, Ratio F:M = 1.1

**REFERENCES:**


6. Request for DNA and histopathology samples from normal geriatric Wheatens — See website [www.scwtca.org/health/geriatric.htm](http://www.scwtca.org/health/geriatric.htm).


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The "MiniMini" Screen for PLE/PLN
- What would be the least expensive, ultra-minimum annual screening test recommendations for PLE/PLN in HEALTHY Wheatens?
  - Urine SG and protein by dipstick
  - Serum albumin
- Not favored but better than nothing
- On any screen, if anything is abnormal, borderline, or questionable, more thorough testing needs to be done!
- All screens are for healthy dogs. Sick dogs should have a diagnostic work-up.

Pathogenesis
What we know so far
- Genetic predisposition for PLE, PLN
- PLE precedes PLN
  - PLE persists while PLN comes on, or
  - PLE occult or didn't occur
- Wheagle Colony (NCSU): Dominant?
- Open Registry, Field Studies: Recessive?
- Complicated inheritance
  - More than one gene
  - Variable expression, incomplete penetrance
  - Environmental trigger(s) may be needed

The Mini Screen
- One tiny step up from MiniMini Screen
  - Urine SG PLUS one of these:
    - Urine microalbuminuria (MA, ERD/HESKA) or
    - Urine protein/creatinine ratio (UPC)
  - Serum albumin
- Better yet: ADD on these as well (the MiniPlus)
  - Globulin
  - Creatinine and BUN
- Mini with a twist (MiniPlus with aTwist)
  - Also check for eosinophilia (by CBC or blood smear)

Theories of Pathogenesis
- Immunoregulatory disorder likely:
  - Sex (female > male)
  - Food allergies may be involved
- Possible structural/functional defects in intestine/kidney
  - Abnormal permeability of barriers in intestine and kidney
  - Vascular? Lymphatic? Tight junction abnormality?

The "Usual" Screen
- Blood
  - CBC - complete blood count
  - Chemscreen: albumin, globulin, creatinine, BUN, cholesterol, Ca, Phos, Na, K, glucose, ALT, alk phos, bilirubin
- Urine
  - MA, ERD or UPC
  - Urinalysis (with SSA would be nice)
- For "Lexus" Screen - add on fecal API

Theories of Pathogenesis
- Possibly both!
  - Structural/functional problem
  - Immune dysregulation
  - Dogs hardest hit may be the ones with both problems (additive)

Where do we go from here?
- Genomic technology is finally here!
  - DNA bank - phenotypes very important
  - GWAS - genome-wide association study with SNP chip analysis
  - Find gene(s) of interest associated with sick dogs in comparison with normal gene
  - Do fine-mapping looking for mutation - deletion, insertion - eventually be able to find carriers, predict affecteds, and normals

Take Home Messages
- There are different medications/diets recommended depending on the diagnosis
- Further study is necessary for mode of inheritance, earlier warning tests or genetic markers, pathogenesis, and treatment

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PET TESTING PROTOCOL IN TOUGH FINANCIAL TIMES

While the SCWTCA and our researchers strongly recommend that complete health testing following the protocol listed on our website at www.scwtca.org be done at least annually on our dogs, we realize that tough financial times can make it hard for some pet owners to follow. Breeders have asked for guidance in what to recommend to these owners struggling financially.

In light of this, Dr. Littman, University of Pennsylvania, School of Veterinary Medicine has provided a streamlined protocol for pets. This protocol should only be used in cases of financial hardship as complete blood and urine testing is still optimal and is required for all breeding dogs by the SCWTCA Code of Ethics.

The Pet Protocol is as follows:

SERUM: Creatinine, BUN, Total Protein, Albumin

URINE: Specific Gravity and Dipstick, MA, ERD or UPC (The MA available through Antech Labs is probably most cost-effective.)

[See http://www.labtestsonline.org/understanding/analytes/bun/test.html for an explanation of what the BUN test will do to help keep your Wheaten healthy.]
LEARNING MORE ABOUT PLN IN WHEATENS
— Meryl Littman, VMD, DACVIM, University of Pennsylvania School of Veterinary Medicine

Please see following article in this issue: “Bridie Pearson – 1st Kidney Biopsy Donor...”.

Geneticist Dr. Paula Henthorn and I are continuing to gather DNA samples in our SCWT DNA bank from dogs affected with genetic diseases and geriatric unaffected dogs. Funding from AKC-CHF was granted to help us study the samples in regards to PLE/PLN (protein-losing enteropathy and protein-losing nephropathy) by genome-wide association studies (GWAS) with SNP (Single Nucleotide Polymorphism) chip technology and fine mapping of areas of interest. In that study, we also have funds to help owners with dogs like Bridie Pearson (see the following article in this issue) with their veterinary bills when they have diagnostic tests including renal biopsy to help determine their exact phenotype. This is important not only for our research, but in order to choose the best treatment protocol based on what is known concerning various types of PLN in humans.

I recently finished a chapter about PLN in dogs and cats which will be in the January 2011 issue of the Veterinary Clinics of North America. I described the following clinical stages of PLN, as presented to veterinarians:

▫ Stage 1 — Proteinuria begins. Often the dog is asymptomatic at this point.
▫ Stage 2 — Serum albumin drops. The dog may still be asymptomatic at this point but in some cases serious complications such as thromboembolic events, hypertension, or effusions/edema may occur as early as stage 2.
▫ Stage 3 — Serum creatinine and BUN (Blood Urea Nitrogen) rise. At this point serum albumin may be low or may normalize due to dehydration; proteinuria may actually decline as renal failure occurs.
▫ Stage 4 — Urine specific gravity drops and polyuria/polydipsia (increased urine volume and thirst) may be noted as renal failure worsens. Decreased appetite, lethargy, weight loss, vomiting, etc. are also signs of renal failure.

We know so much more about the entity known as “PLN” than we used to!

1. There are various forms or subtypes of PLN in dogs, including those caused by genetic and acquired factors. We should not assume that all Wheatens with PLN always have a genetic form of PLN. Also, we need to better define exactly what the genetic form of PLN in Wheatens looks like morphologically, using the newest methods available, because the old methods do not show the detail necessary to avoid confusing one subtype with another. Diagnostic tests including renal cortical biopsies interpreted with the latest technology can help identify the subtype of PLN occurring in each individual. When more of these biopsies are done, we will understand better what exactly is the “genetic form of PLN” in Wheatens, and the diversity of findings that may exist. For instance, it’s possible that something different is going on in dogs with combined PLE/PLN versus PLN alone.

2. It is best to identify which form of PLN is occurring in each individual so that we can choose the best treatment protocol for that dog. For instance, if a dog has an
infection or an immune-mediated cause, it may need specific therapy such as antibiotics or immunosuppressive pulse therapy, in addition to the supportive and symptomatic protocols used for PLN, such as angiotensin-converting enzyme inhibitors, low antithrombotic dose of baby aspirin, diet changes, antihypertensives, omega 3-fatty acids, etc.

3. The best time to get renal cortical biopsies in dogs with PLN is relatively early in the process, before there are chronic changes such as scarring, fibrosis, or end-stage changes in the kidney, which obscure the initial lesions. Thus, it would be best to get renal cortical biopsies taken during life, rather than after death.

4. Renal cortical biopsies for PLN subtype identification can be safely done by experienced personnel with ultrasound guidance, under anesthesia, using a Tru-cut needle for core biopsies (However, this is not sufficient for a diagnosis of renal dysplasia which would require a wedge biopsy.). Diagnostic tests should first be done to see if the dog is a candidate and whether the core biopsy procedure should be considered (contact Dr. Littman at 215-898-9288 for advice and possible help with funding BEFORE planning a renal cortical biopsy). A most thorough work-up may include CBC (Complete Blood Count), Chemscreen, urinalysis, urine protein:creatinine ratios, urine culture, blood pressure measurements, titers for exposure to infectious diseases that can cause PLN (depending on where the dog has lived or travelled), and chest radiographs and abdominal ultrasound to check for cancer or other diseases. The pros and cons of getting a renal cortical biopsy must be considered for each dog as an individual.

5. The most sophisticated, state-of-the-art examination of these renal cortical biopsies is done at the Texas Veterinary Renal Pathology Service by Dr. George Lees and his team. Dr. Lees should be contacted (979-845-2351) by your veterinarian before the biopsy day is planned, so that the appropriate materials and instruction kit can be sent out for them to use. The renal cortical biopsies need to be prepared in 3 very special ways and then sent to Dr. Lees by overnight (FedEx) express on ice:
   (1) in Michel’s fixative (for immunofluorescence “IF”),
   (2) in glutaraldehyde (for electron microscopy, “EM”), and
   (3) in formalin (for light microscopy “LM”), which would be done rigorously with thinner cuts of tissue than are usually done for general histopathology.

6. We recommend that renal cortical biopsies be done as above, in appropriate cases, in order to identify the subtype of PLN so that we can offer the most specific therapy to help the individual. By sharing information, this will help the whole Wheaten community learn about the diversity of results found in the field — and to know if Wheaten PLN may be a model for a type of PLN in people (and vice versa). This will lead to our better understanding of PLN in both species regarding pathophysiology, treatment, and prevention. And please don’t forget to send in the DNA sample to our DNA Bank at PennVet so that we can hopefully help future generations of Wheatens avoid getting PLN in the first place!

Footnote Reminder: If you have a dog who may qualify for Drs. Littman and Henthorn’s study, contact Dr. Littman at 215-898-9288 for advice and possible help with funding before planning a renal cortical biopsy.
“BRIDIE” PEARSON, 1ST KIDNEY BIOPSY DONOR FOR DR. LITTMAN & HENTHORN’S STUDY — AN INVALUABLE GIFT TO THE FUTURE OF SOFT COATED WHEATEN TERRIERS — AMY HAVELY, DR. MERYL LITTMAN, & DEBBIE PEARSON

FROM OWNER, DEBBIE PEARSON:

Although she loves the city of Nashville, Bridie prefers the country life in Arkansas on our farm. Bridie is our happy, alert, fun-loving family pet that brings so much joy to our lives. Everyone who meets her agrees that she is indeed a great dog. Bridie spends her days playing with her best friend, a black Labrador Retriever. They go for long walks, wade in the lake, and ride on the golf cart. Bridie simply enjoys life and fits in anywhere she goes.

From the day I contacted her breeder, Amy Havely, Bridie is the dog of which I dreamed. In my quest for a Wheaten puppy, I found myself making phone calls, interviews, and visits to Amy’s home and soon knew that I would be getting my first SCWT puppy. I was so excited.

It was in the fall of 2005 that I made the 2-hour trip to Nashville and fell in love at first sight. Since then, Bridie has fulfilled and surpassed every expectation I ever had in a family companion.

Because she is such a significant member of our family, we have always followed the yearly health protocol and advice of our breeder to avert any potential health problems. However, it was during the yearly exam and health screening in which the first sign of kidney problems appeared.

Our vet, Dr. Graves, indicated that the blood work and urinalysis reports revealed higher than normal amounts of protein. At this time, Dr. Graves recommended further testing. Although he informed us of expense, I immediately knew whatever Bridie needed was what I would do for her.

Upon receiving these results, Amy recommended going to Mississippi State University College of Veterinary Medicine (MSU’s CVM) in order to seek knowledgeable doctors who are experienced with protein-losing diseases.

Soon after, we made our way to MSU’s CVM where they performed more tests, findings of which were discussed with Dr. Littman at UPenn, who then suggested a kidney biopsy. Although the risk of a biopsy made me nervous, the staff made me feel comfortable about the procedure and even called me often during her recovery to reassure me that she had done extremely well. I picked her up the next day and Bridie was her old self — a very happy dog.

Though it was scary for me to think about going through with this biopsy, I realize it was necessary to properly diagnose and treat this problem.

Unfortunately, results from the biopsy proved my worst fears: Bridie has PLN. She is now on special medication and diet as prescribed.

Nonetheless, the good news is that when PLN is detected early — as in Bridie’s case, before the dog is outwardly sick — medication and intervention will help to keep her happy and stable. In the meantime, Bridie can continue playing on the farm, riding in the golf cart, and delivering our family the happiness that she has always brought.

(continued on next page)
FROM DR. MERYL LITTMAN:

Bridie generally had been a healthy, happy female spayed Soft Coated Wheaten Terrier. She was up-to-date on vaccinations and was given flea/tick/heartworm preventative. She lives on a farm with other dogs, horses, ponds, etc. Past history included allergies/skin issues intermittently treated with steroids. But when Bridie presented to her veterinarian at 5.5 years of age because of slow subtle changes including finicky appetite, decreased energy, and increased thirst, renal disease was a concern. Physical examination was non-remarkable. Blood and urine tests showed azotemia (elevated serum BUN and creatinine), borderline low albumin, proteinuria, and decreased urine specific gravity. Imaging showed small kidneys. Urine culture and tests for exposure to Leptospirosis, Lyme, Anaplasma, Ehrlichia, and heartworm were negative. A Rocky Mountain Spotted Fever titer was low positive, indicating past exposure. Her blood pressure measurement was normal.

Bridie was feeling pretty good but was diagnosed with early chronic renal failure and Stage 4 PLN (see previous article in this issue: "Learning More About PLN in Wheatens"). Bridie was exhibiting some findings consistent with genetic PLN in Wheatens, but other findings she had were not typical. What could we do to help determine the best protocol for Bridie’s treatment? We recommended that a renal cortical biopsy be done and examined in detail by the Texas Veterinary Renal Pathology Service (Dr. George Lees and his team) where the newest techniques are used including electron microscopy, immunofluorescence, and thin-section light microscopy (see “Learning More About PLN in Wheatens” in this issue). The biopsy results would be used to help Bridie herself as well as help us learn more about PLN in Wheatens.

Bridie did very well through the biopsy procedure and was sent home with medication to decrease her urinary protein loss and a modified hypoallergenic diet for dogs with early renal failure. Her biopsy results showed that immunosuppressive therapy is not warranted in her case of PLN. This is an important finding, because immunosuppressive therapy may have serious side effects and should not be used blindly, but would be recommended if her renal biopsy result supported their usage. We don’t know if Bridie’s biopsy results will be typical of genetic PLN in Wheatens, because not enough of these detailed biopsies have been done yet.

Bridie continues to have blood and urine tests checked periodically to monitor her situation; and so far, she is stable and feeling good. But we know that she has less renal reserve than normal; and we are getting prepared for the fact that this disease is known to be progressive and that, sadly, Bridie will probably not have a full life span. There may be other medications, diet changes, and options that we will consider as necessary in the future to help Bridie have a good quality of life for as long as possible. I wish to thank the owner, breeder, and all the veterinarians involved who helped with the diagnostic work-up and management planning so that Bridie can have as full a life as possible. Thank you for sharing information about Bridie so that we can all learn more about Wheaten’s and their health issues.

FROM BREEDER AMY HAVELY:

During the 16 years of breeding SCWTs, I have always dreaded the phone call that would make my heart sink and tears well up in my eyes. Sadly, August 29, 2010 was that dreaded day. Debbie Pearson, Bridie’s owner, gave me the final report of the kidney biopsy: PLN. I have shed many tears since that day as I listened to Debbie explain how much she loves her Wheaten and how important she is to their family. Although I did everything possible to avoid breeding this health problem into my lines, Debbie’s phone call with the disheartening news underscored the importance of definitively testing and detection of PLN.

Words are insufficient to explain the fabulous care Bridie’s owners have given her. The Pearsons provide a breeder’s dream home for their puppy. Debbie has gone above and
beyond to help — not only Bridie, but all Wheatens — by following through with the protocol to submit a kidney biopsy for Drs. Littman and Henthorn’s research.

I hope we all learn and benefit from this article so that we may help our dogs, as a breed, become healthier by determining the genetic basis for protein-losing diseases. Early detection, definitive diagnosis, and genetic research are critical to achieving that goal. If you have the opportunity, please consider allowing your dog to offer a kidney biopsy to facilitate Drs. Littman and Henthorn’s study. The gracious gesture is an invaluable gift to the future of Soft Coated Wheaten Terriers.

NEW GENETIC STUDY OF PLE/PLN FUNDED!

— K. Carol Carlson, Chair, Soft Coated Wheaten Terrier Endowment, Inc.
Jacqueline Gottlieb, Chair, Soft Coated Wheaten Terrier Genetic Research Foundation
Cecily Skinner, Chair, Health Committee, Soft Coated Wheaten Terrier Club of America, Inc.

We are pleased to announce to all Wheaten owners and breeders that a vital project to learn more about the genetic basis of PLE/PLN has been funded by the American Kennel Club Canine Health Foundation (AKC-CHF). As owners, breeders and leaders of Wheaten health organizations, we are tremendously excited about the potential of this project for the future of our breed.

Meryl P. Littman, VMD, DACVIM and Paula S. Henthorn, PhD of the University of Pennsylvania School of Veterinary Medicine will be the principal investigators of a 12-month project “Genome-wide Association Study of PLE/PLN in Soft Coated Wheaten Terriers.” This project grows out of work done by Drs. Littman and Henthorn over the last year in which 90 DNA samples were studied using the latest SNP chip technology. This initial study identified an area of interest that is different in dogs with PLE/PLN and geriatric normal dogs. [See the following article for the official AKC-CHF announcement of Grant 01485.]

The study that has just been funded by Grant #01485 will continue to use these technologies on some of the over 500 samples that Wheaten owners have submitted to Penn over the last 25 years, with the hope of finding specific mutations, deletions, or insertions, which could be used to identify carriers of disease-predisposing alleles. Additionally, the project will analyze renal lesions more rigorously by studying real biopsy samples taken shortly after diagnosis.

Dr. Littman has supported our breed for over 27 years by consulting with breeders, owners and veterinarians, establishing the Penn Vet SCWT DNA Bank, managing our Open Registry (OR) and conducting other research. Click to read more about Dr. Littman.

Dr. Henthorn has 30 years experience in mammalian genetics, including 20 years of concentration on the molecular basis of canine genetic disease. Click to read more about Dr. Henthorn.

While this project is fully funded by a combination of the AKC-CHF grant and the funds that generous Wheaten owners and supporters have donated to the GRF, the Endowment and SCWTCA over the years..., funding for the owner’s expenses and biopsies has not been funded. The Genetic Research Fund (GRF) and SCWTCA Endowment have agreed to fund the biopsies and owner’s expenses.
01485: Study of PLE/PLN (Protein-losing Enteropathy/Nephropathy) in Soft-coated Wheaten Terriers

Primary Investigator: Dr. Meryl P. Littman, VMD
Institution: University of Pennsylvania - School of Veterinary Medicine

Total Grant Amount: $50,000.00

Project Abstract:

In 1997 the Soft-coated Wheaten Terrier (SCWT) Club of America helped us start an Open Registry which lists dogs affected with familial diseases common to this breed such as inflammatory bowel disease (IBD), protein-losing enteropathy (PLE), protein-losing nephropathy (PLN), combination PLE/PLN, Addison's disease (AD), and juvenile renal disease/renal dysplasia (JRD). The 2009 update lists almost 1000 affected dogs, with the vast majority affected with PLN, PLE, or PLE/PLN, in that order. These protein-losing diseases have had a devastating impact on the SCWT breed because: 1) there are no predictive tests, just annual screening tests, 2) there is no age limit, so dogs might be used for breeding before they show illness, and 3) the mode of inheritance is unknown and appears complex. The PennVet SCWT DNA Bank contains more than 500 blood or tissue samples from affected dogs as well as geriatric (14 years or older) non-affected Wheatens. Most affected samples are from confirmed PLE and/or PLN cases, with diagnosis documented by blood, urine, and histopathology test results.

The proposed study will utilize SNP chip and genome-wide association analysis to identify chromosomal regions that are associated with these serious diseases. Further testing (fine-mapping) of regions of interest may then reveal specific mutations, deletions, or insertions, which could be used to identify carriers of disease-predisposing alleles. We also hope to learn more about the pathogenesis of these diseases (immune-dysregulation vs. structural/functional abnormalities) which may help Wheatens, other breeds of dogs, and humans with these diseases.
GRANT REQUESTS

The Health Committee reviewed a list of new AKC-CHF grants needing additional donations. None of the research was breed-specific, but at least one would be of interest to our breed. In light of the grant proposal from Dr. Littman and Dr. Henthorn submitted to CHF [see previous page], the HC felt any recommendations on other funding requests should wait until we get the decision on their project.

Subsequently, we were very excited to hear that CHF did approve a grant for the Littman/Henthorn project! A poll of the HC was taken with regard to our recommendation to the SCWTCA board involving additional funding for the grant and biopsies if needed. Eight HC members voted on the poll, and the vote was unanimous as follows:

The Health Committee recommends that the SCWTCA strongly endorse the Littman/Henthorn PLE/PLN Project and further recommends that we utilize the SCWTCA Health Fund to help cover the cost of biopsies for participating dogs. In addition, we support the use of the AKC/CHF Donor Advised Fund to provide financial support of the project when appropriate.

The three Health Groups — the SCWTCA, the Endowment, and the GRF — are committed to working together to insure the success of the project. Pam Mandeville has volunteered to coordinate the Public Relations/Communications aspect and will utilize input from the HC, the GRF, and the Endowment. Further details will be available as the project moves forward.

PELVIC BLADDER STUDY

As mentioned in my June report, I had contacted Dr. Mark Neff regarding the Pelvic Bladder Study that has been discussed on the various listservs. Helen Fraguela organized the initial sample donations and has been great about keeping me informed.

This week, I was contacted by Dr. Neff regarding the Pelvic Bladder Study and other ongoing research. Dr. Neff is involved in a very large and highly funded Cancer Study involving several types of Canine Cancer: melanoma, hemangiosarcoma, lymphoma, malignant hiscocytosis, and osteosarcoma. Dr. Neff is also looking for more samples of dogs with pelvic bladders. This only involves a cheek swab, so it is very easy to do. He is also requesting cheek swabs from “healthy” American- and Irish-coated dogs. These dogs have provided a control group for various disease projects. Participation in any of these requests is very simple and can be done directly with Dr. Neff’s staff. There is no cost to the owner. Further information will be posted online and in the Health newsletter.

[Editor’s Note: For more about new research opportunities, the article following this report.]

NIH STUDY

I am including my own thoughts on the NIH Study as someone who has put on a clinic, donated DNA on my dogs, and is also on the frontline of questions from other donors. Elaine has done an excellent job of outlining our experience to date. The DNA Clinic in Southern California was one of the first to collect for the NIH; and two years later, this month, we have really seen no progress in the proposed study. I strongly supported our involvement initially and still feel it would be worthwhile. I was one of the people in Helen’s survey who said they would organize a future clinic. However, until all prior donors have been contacted, DOB range is firm, a survey is in place, and everything at NIH is done and ready to go, I’m not sure I can support moving forward with further clinics. Donor fatigue is a real problem; and I’ve had many, many people ask me what is happening with the samples they’ve submitted. A lot of work went in to the clinics and, as the volun-
teers can attest, getting turn out takes a great deal of effort on the part of organizers and breeders. We need to appreciate these volunteers and be sure their efforts won’t be wasted.

EDUCATION

We will be publishing the Fall issue of *Wheaten HealthNews* following Montgomery. Thanks, as always, to Roxanna Springer for her wonderful layout, ideas, articles, and support! The SCWTSC and the SCWTCA hosted Dr. Meryl Littman at the SCWTCA National Roving Specialty held at Great Western in June. I’d like to thank Michael De Carlo for organizing a wonderful reception prior to Dr. Littman’s presentation. Dr. Littman spoke on the Open Registry, health screenings, DNA banks, and upcoming research. Her presentation was followed by a Q&A session. Many thanks to Dr. Littman for being so generous with her time as she answered questions for quite a long time! Dr. Littman’s printed “handout” will be in the next issue [i.e., this issue] of *Wheaten HealthNews*. In speaking with Dr. Littman following the weekend, we are planning to do a “refresher course” on the Open Registry and breeder participation. I think it’s also time to do a “refresher” on health testing and what to look for.

FUNDRAISING

The pendant donated by Ann Leigh and myself was raffled off at Great Western. Proceeds of the raffle will benefit the Colony Dogs. Please see the Treasurer’s Report for details. Unfortunately, PayPal no longer allows raffles, so ticket sales were hurt somewhat.

The tote bags continue to sell well, and we have sold out of the Purple ones. I’d like approval from the board to reorder 100 of them at $2.70 each. We do have some of the black ones left in inventory. The HC is looking at various items that will appeal to both men and women to offer on an ongoing basis.

NEW RESEARCH OPPORTUNITIES: CANINE CANCER PROJECT AND A POSSIBLE LOOK AT PELVIC BLADDERS IN SCWTS

CANCER PROJECT

Dr. Mark Neff, Director, Program for Canine Health & Performance, The Translational Genomics Research Institute (TGen) & Van Andel Research Institute (VARI) is currently involved in a major cancer research project.

This is a $4.3M federally funded study that will ultimately include clinical trials for canine patients — not just identifying genes, but using this knowledge to develop new therapies and new diagnostics. They are looking at several types of canine cancers: melanoma, hemangiosarcoma, lymphoma, malignant histocytosis, and osteosarcoma. If you have a Wheaten affected with one of these cancers, please contact Dr. Neff’s assistant Elissa at Elissa.Boguslawski@vai.org.

PELVIC BLADDERS

Dr. Neff is also willing to look at the issue of pelvic bladders but needs a minimum of 12 affected dogs to consider pursuing this as a study. To date, he has not received enough DNA from affected dogs. The DNA required, at this point, is only the cheek swab. Helen Fraguela initiated the contact with Dr. Neff regarding the pelvic bladders, and you can contact Helen at Fraguela@aol.com regarding DNA kits; or contact Dr. Neff’s assistant directly at Elissa.Boguslawski@vai.org.

Dr. Neff is also looking at genetic coat differences with the Irish and American coats via DNA from cheek swabs. These dogs have served as a control group for the other project. 

[Editor’s Note: For more about Dr. Neff, TGen, and the Van Andel Institute, see their web site at: http://www.vai.org/Research/Labs.aspx.]
DNA HEALTH INITIATIVE COMMITTEE ANNUAL REPORT — SEPTEMBER 20, 2010

CANINE PHENOME PROJECT, SIBLING PAIRS STUDY, & SCWT LIFETIME HEALTH STUDY AT NIH

ELAINE AZEROLEO, COMMITTEE CHAIR
KATHY DROBNAK, OPERATIONS COORDINATOR
LEE MARTIN, COMMUNICATIONS COORDINATOR

COMMITTEE WORK SUMMARY, SEPTEMBER 2009 – SEPTEMBER 2010

The Committee worked to educate members and other Wheaten owners about the specified DNA projects and to facilitate collection of DNA samples.

Educational efforts included preparing materials for use in Benchmarks and Wheaten Health News and on the SCWTCA website and the Discuss listserv. Information cards were distributed during the Montgomery national specialty weekend also. Reports were provided to the Board prior to each meeting.

The Committee organized a successful campaign to encourage owners of dogs who previously donated DNA to the Canine Phenome Project (CPP) to complete and update records at CPP. Health survey information was entered for 90 additional dogs and updated for many others. Additional dogs were enrolled online. The June 2010 committee report details campaign activities and results.

The Committee also focused on distributing information on the SCWT Lifetime Study at the National Institutes of Health (NIH) during the first half of the year. This included how-to-participate and FAQ documents. Since June, an effort has been made to assess interest in and feasibility of this study. Two conference calls with Dr. Parker, NIH researcher; Helen Moreland, SCWTCA liaison to NIH; Jinx Moore, SCWTCA President; and Elaine Azerolo, Committee Chair have clarified some issues. See the NIH project status description below. A separate report is being submitted by Helen Moreland. [Helen's report immediately follows this article.]

Detailed instructions and forms for organizing and conducting a blood collection clinic for CPP and NIH were updated and provided to volunteer clinic organizers. There were two clinics held, one during the national specialty weekend.

The committee thanks Robyn Alexander, Nancy Draper, Gay Dunlap, Cecily Skinner, and Roxanna Springer for their assistance in publishing and distributing information about the DNA projects. The support of the Boards of the SCWTCA, the SCWTCA Endowment, and SCWT Genetic Research Fund (GRF) is appreciated.

STATUS OF RESEARCH PROJECTS

Canine Phenome Project (CPP)

There are over 1000 Wheaten DNA samples at the University of Missouri. Most were submitted for the Canine Phenome Project DNA bank. Owners of 712 of these dogs have completed the general health survey online. Data is needed on the remaining dogs to make the samples useful in research.

More samples will increase the value of the DNA bank. The SCWTCA Endowment has generously agreed to continue funding 50% of the DNA processing fee for an additional 500 samples.

Sibling Pairs Study

Dr. Johnson at University of Missouri College of Veterinary Medicine will release information on this study when the data has been analyzed. Liz Hansen, breed club liaison, is contacted regularly and is aware that we would like information as soon as possible.

(continued on next page)
SCWT Lifetime Health Study at NIH

As indicated above, this project is being reviewed. Dr. Parker is revising some of the study parameters, reducing the number of samples and extending the collection period. However, she is also changing the Date Of Birth range, eliminating some previously donated samples. Dr. Parker has not yet completed the comprehensive health survey nor contacted previous donors. She stated the intent to do both in September 2009 (see report), January 2010 (see report), and during the June 17, 2010 and August 5, 2010 conference calls. In the August 5 call, she said she would do both by September 3, 2010 plus complete additional items discussed. The Board will be informed if the status of these items changes prior to the October Board meeting.

NIH LIFETIME STUDY

Dr. Parker and NIH have agreed to:

1. Extend to the SCWTCA Inc another year for sample collection, until January 2012, this is beyond the original two year study period;
2. Require a smaller sample size in keeping with 5-10% of SCWT AKC individual dog registrations during the two-year study interval, 500 as opposed to 1000 previously sought.

Dr. Parker and NIH agreed to send an annual report of their findings, trends and other areas of interest to the SCWTCA, Inc., even though results from the study will not be realized for several years. This will be shared with the Board and the membership.

The Board is being asked to approve the extension of the NIH SCWT Lifetime Study for one more year, until January 2012, and approve the short survey the owner completes to go with the blood sample to the NIH.

The following was reported by Dr. Parker:

“The most important aspect of the date range for collecting samples is that the dog is under 5 when the sample is donated, not that the dog is born on a certain date. Our goal was to have dogs collected prior to their 5th birthday and all of the collections to happen within a two-year span. We can keep all of the dogs born in 2005 and 2006 in the study because they were collected when they still qualified, but I do not think that dogs from 2005 should be collected next year. More important is to complete the collection as quickly as possible so that the study can get underway and all the participants can be brought to an even level. This may require a little extra information to be collected from the owners of the older dogs in the first year but then should remain steady over the remainder of the study.

I have spoken with Dr. Gary Johnson, and he is willing to contribute samples donated to CPP to the Lifetime Study as well. I will have to get numbers from him regarding the eligible samples, but we cannot assume that all of those samples will be included as the owners were not aware of the Lifetime Study at the time of submission. They will need to be contacted again and entered individually. These samples should not be included in the collection numbers until the owners have formally enrolled and we can confirm that samples are on hand.

I have also spoken with Dr. Paula Henthorn at the University of Pennsylvania, and she assures me that they will work with us to include all eligible participants in the lifetime study in Dr. Littman’s and her PLE/PLN studies when such information becomes available. They are also very interested in putting information gained through the Lifetime Study to use in their own mapping endeavors.

Gretchen is sending out letters and short surveys this week to formally include all of the previously submitted samples in the Lifetime Study. This is a total of 115 eligible dogs that submitted samples to our lab from 2007–2010.

(continued on next page)
We have a wonderful opportunity right now if we get the Lifetime Study underway. We are going to have the chance to obtain complete genome sequence of additional dogs to add to the publically available Boxer sequence. I have petitioned to have the Soft Coated Wheaten Terrier sequenced as part of this study as I believe that it will have a strong impact on future genetic projects and will lead to many new discoveries.

Just for your information, a similar study is currently being designed for the Golden Retrievers through a company in Colorado that has an initial startup cost of more than 10 million dollars. The Soft Coated Wheaten Terrier Lifetime Study is not a small project, and we expect it to set standards for the field. We are at an exciting time in canine genetics where new discoveries are being made every day. We hope that the SCWT club will be excited about joining us in this new endeavor.

Heidi G. Parker, PhD  
CGB/NHGRI/NIH; Bethesda, MD  
(301) 402-8625

We are planning to implement a post card response so that everyone gets notification that their samples have arrived.

The first long survey will go out in the first year after all of the samples are collected. We will send out all of the surveys and follow-up on non-responders. We intend for all of them to go out at the same time each year, not in phases, so we would appreciate it if the club would include reminders in newsletters or on the website at that time of year, but the ultimate responsibility will be ours not yours.”

DNA BANK, GERIATRIC DOG, INFORMATIVE FAMILY, & OPEN REGISTRY REPORTS —SEPTEMBER 15, 2010

Submitted by Beth Verner on behalf of Meryl Littman, Carol Carlson, & Anna Marzolino

In an attempt to simplify and streamline the reporting process, until further notice, SCWT-related projects (DNA Bank, Geriatric Dog, Informative Family, and Open Registry) at the University of Pennsylvania (Penn’s) School of Veterinary Medicine will be reported as one.

SCWTCA sponsored the summer salary ($5,426.35) for one student worker to assist Dr. Littman at Penn. Second year vet student, Claire Wiley, filled that position. Claire has skills working with DNA and PCR technology; so instead of working on the Open Registry or Informative Families databases, Dr. Littman decided Claire should focus all her time working in Dr. Paula Henthorn’s Genetics Laboratory, which included:

• Cataloging and processing blood and tissue samples for long-term storage and DNA isolation from blood and tissue;
• Following up on the association analysis of the 90 SNP chips that were hybridized in the Spring of 2010;
• Searching the literature for information pertaining to the genes in the chromosomal region with the strongest statistical support from the association with the PLN phenotype to determine if there were good candidate genes in the region. There are!
• Sequencing two candidate genes from affected and unaffected dogs, and sequencing parts for two additional candidate genes;
• Performing genotyping of additional dogs (determining the SNP alleles), and performing copy number variation analysis of the SNP chips.

The information gleaned from the Spring 2010 run (the pilot study) on the first set of SNP chips (the genome wide association study, aka GWAS) showed a statistically significant difference between dogs with PLN and geriatric control dogs for an “area of interest” on one particular chromosome.
In that area of interest are millions of base pairs whose sequence needs to be analyzed thoroughly. This is done by using PCR (polymerase chain reactions) technology and creating primers (short clips of sequences) that can attach to pieces of the DNA and reveal/reproduce the additional strand of gene sequence in relatively tiny sections at a time. It’s very tedious work making different sets of primers for each small chunk of DNA to be sequenced, doing lots of pipetting, incubations, electrophoresis, etc., and looking for mutations, deletions, additions, premature stops, etc. So far, Claire found several different sequences. There may be more, which is the focus of ongoing work.

PLE is another story. So far, we have not found a statistical area of interest for PLE in the pilot run; but doing SNP chips on another run (we are planning 96 dogs if funding comes in) to add data to our initial pilot study (last spring’s run) may help add strength to the statistics and help reveal an area worth exploring further for PLE.

We collaborated with workers in England and shared DNA samples for Addison’s studies. We will be able to add their findings on the control dogs to our data.

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SPECIAL PROJECT — ADDISON’S DISEASE STUDY REPORT — JUNE 18, 2010

— Dr. Neil P. O’Sullivan

Dr. Anita M. Oberbauer and Ms. Janelle M. Belanger, UC-Davis, have developed a budget for a Phase One of the project in SCWTs. The scope of work under this budget is to screen DNA from a total of 48 SCWT DNA samples: 24 SCWTs affected with Addison’s Disease and 24 geriatric normal SCWTs. There is no need for relationships among or between sample sets. These will be screened using the new Canine Illumina SNP chip — 170,000 with a 99% call rate. For more details, see http://www.illumina.com/products/caninehd_whole_genome_genotyping.ilmn. All genotyping will also be done at a third party lab (GeneSeek) which is the industry leader in this area. Data analysis will be done in Dr. Oberbauer’s lab.

Actions Needed: SCWTCA needs to approve this budget. A recommendation on funding needs to then be made. Will all three organizations (SCWTCA, the Endowment, the GRF) split funding on this project? Once funding is secured, permit direct contact between Dr. Oberbauer and Dr. Littman for identification of suitable candidates for DNA samples to be shared for this project. Dr. Littman has already indicated her interest in going forward with this collaboration on the sample access.
UPDATE — DEGENERATIVE MYELOPATHY RESEARCH AND IMPLICATIONS FOR SCWTS

— ELAINE AZEROLO, CPP COMMITTEE

This is an update to information published in the Spring 2009 Wheaten HealthNews, Canine Phenome Project Report, page 24. In that report, Liz Hansen described the results of testing 29 random Wheaten DNA samples from the CPP DNA bank using the new genetic test for Degenerative Myelopathy. Liz wrote, “We randomly choose 29 SCWT samples from the collection here, and found 0 testing ‘affected’/’at risk,’ 5 testing ‘carrier,’ and 24 testing ‘normal’. This is a fairly low incidence of the mutant allele (5 of 58 alleles — each of the 29 dogs have 2 alleles, or an 8.6% frequency), but perhaps worth noting — as in a breed with a small gene pool, a ‘carrier’ individual widely used for breeding could raise the overall breed-wide risk.” The article ended with a request: “We would ask that SCWT fanciers please report dogs with possible DM symptoms to us if they appear in the breed.”


UPDATED INFORMATION — DECEMBER 14, 2010

— LIZ HANSEN, CPP BREED CLUB LIAISON FOR DR. GARY JOHNSON, ANIMAL MOLECULAR GENETICS LABORATORY, UNIVERSITY OF MISSOURI

You may be interested to know that we also had 12 SCWT samples sent in for DM (degenerative myelopathy) testing by their vet or neurologist because they were exhibiting clinical signs of DM. Eleven of these 12 dogs did test as ‘affected’/’at risk’ for DM. The other one also had some other issues that apparently were responsible for the symptoms seen.

While I know that PLE/PLN is higher on your priority list as a concern for the breed, it may be wise for Wheaten breeders and owners to be aware that DM does exist in the breed, and be watchful. It would be a good idea for those with dogs making a contribution to the gene pool, especially widely used stud dogs, to be tested for DM so that the problem doesn’t become more widespread.

Through the first of this month, we have tested a total of 51 SCWTs for DM: 32 tested ‘normal,’ 8 tested ‘carrier,’ and 11 tested ‘affected’/’at risk.’ This gives an allele frequency of 29%, which means 29% of all the alleles out there in the breed show the mutation (for DM) — since each dog has 2 alleles. Most will have 2 normal alleles (‘normal’), some will have 1 normal and 1 mutated allele (‘carrier’) and others will have 2 mutated alleles and be at risk for developing DM as they age (‘affected’/’at risk’).

There is no reason to panic, but it’s not something to ignore either. One widely used stud dog that happens to be ‘at risk’ or a ‘carrier,’ and the incidence could rise dramatically.

An outstanding dog that tests at risk can be used in a breeding program, but it would be advisable to breed only to a mate tested ‘normal.’ All the pups would test ‘carrier.’ None would be ‘at risk’ for DM, and the good traits the ‘at risk’ dog possesses are passed to the next generation. If those carrier offspring are bred to a mate tested normal, hopefully the best pups from that litter (will) test normal. (You would expect about half normal and half carrier pups from a carrier x normal mating.) Using a DNA test wisely, it is possible to eliminate or greatly reduce risk of disease in 2 or 3 generations, while maintaining the other exceptional qualities that dog may have.

Elimination of all ‘at risk’ or ‘carrier’ dogs from the gene pool will only serve to restrict an already relatively small gene pool, and you lose all their good traits along with the one bad one.

(continued on next page)
For comparison, we have tested 298 Kerry Blues for DM: 138 ‘normal,’ 114 ‘carrier,’ and 46 ‘affected’/’at risk’ (allele frequency =35%). As with the Wheatens, this is not horrible, but worth noting and paying some attention to.

I’m sure you don’t want to end up in the situation we have with Boxers and Pembroke Welsh Corgis. With Boxers we’ve tested 2094, and only 270 test ‘normal,’ 639 ‘carrier,’ and 1185 ‘affected’/’at risk,’ for allele frequency of 72%.

The PWCs are even worse. Of 1890 tested, only 111 test ‘normal,’ 556 ‘carrier,’ and 1223 ‘affected’/’at risk,’ for allele frequency of 79%. Obviously, they have to breed some of the ‘at risk’ dogs, and the ‘carriers,’ or they don’t have a breed left. In addition, some of those ‘at risk.’

Boxers may be ‘normal’ for DCM (dilated cardiomyopathy — the heart condition that kills many at middle age), and don’t develop cancer, so they have genes that are much needed in the Boxer gene pool. It took years for them to get in to this situation, and it will take quite a few generations to get back out while maintaining genetic diversity and positive breed qualities; but with DNA tests, it is possible — if people are testing and paying attention to how they make their breeding choices.

Our website for DM info is [http://www.caninegeneticdiseases.net/](http://www.caninegeneticdiseases.net/). Click on DEGENERATIVE MYELOPATHY.

[Note from Elaine Azerolo: The genetic test for DM is available from OFA at [http://www.ofa.org/dnatesting/dm.html](http://www.ofa.org/dnatesting/dm.html). The test kit contains a cheek swab to collect DNA from inside the dog’s mouth to transfer to a special card that is mailed back for testing. A report will be sent to the owner. Dr. Johnson requests that owners of SCWTs with possible DM symptoms contact his lab. Symptomatic dogs will be tested at no charge. See the Research section of the website referenced above.]

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UNNAMED MOVEMENT DISORDER IN SCWTs — VETERINARY NEUROLOGISTS AT U-MISSOURI INTERESTED

—— ELAINE AZEROLO

A severe movement disorder has been observed in a few Wheaten Terriers. Liz Hansen, CPP Breed Club Liaison, showed a video of an affected Wheaten during her presentation to the SCWTCA at Montgomery 2006. In the video, the Wheaten appears to move very erratically without coordination or control of its legs, body, or head. The disorder is unnamed at this time.

Liz Hansen, breed club liaison for CPP, sent the following update:

“We also received samples from 3 dogs for the unnamed movement disorder seen in SCWTs. I believe I showed a short video clip of an affected dog when I spoke at the meeting with Montgomery County about 3 or 4 years ago. If more dogs showing this movement disorder appear, we are definitely interested in samples from them, and also from their normal siblings and parents. Our neurologists here are interested in looking at this problem, so we’d appreciate being notified of any cases.” Contact Liz at [HansenL@missouri.edu](mailto:HansenL@missouri.edu).

Dr. Gary Johnson’s Animal Molecular Genetics Laboratory has been successful in developing genetic tests for several neurological conditions in other breeds working with veterinary neurologists at University of Missouri. Information is available at the Canine Genetic Diseases Network, [http://www.caninegeneticdiseases.net/](http://www.caninegeneticdiseases.net/).
THE GOOD NEWS & THE BAD NEWS ABOUT THE CANINE PHENOME PROJECT — YOUR HELP IS NEEDED!!!

**The Good News:**
The Canine Phenome Project (CPP) DNA Bank at the University of Missouri has received samples from 980 of our Wheatens!

**The Bad News:**
Of the 980 samples collected, about 350 still need to have health surveys completed by owners. Without a health survey, the DNA has very limited value to researchers because it cannot be used in the discovery stage of research or for gene mapping.

**How You Can Help:**
If you have submitted DNA samples, go to [www.caninephenome.org](http://www.caninephenome.org) and check to see if a health survey has been completed for each dog for whom you have submitted a sample. If you have already completed the health survey, please update it if there has been any change in your dog’s health status. (More detailed directions follow.)

Many of you have given generously of your time and money to have your dog’s blood collected. It is equally important to make sure that the DNA counts by completing or updating the health survey.

**How to Update Your Dog’s DNA Records at the CPP:**
1. Go to [www.caninephenome.org](http://www.caninephenome.org)
2. Click on Login or Signup (located about half way down page)
3. Enter your email address and CPP password, and click on “Login”. (If you have forgotten your password, there is an option to select to have your password emailed to you immediately.)
4. Once you have successfully logged in, a screen pops up that lists the dogs enrolled by you. You can also change your password or enroll a new dog from this screen.
5. To select a dog, click on its registration number or ‘n/a’ if no registration number is listed. The dog’s basic information will be displayed as well as a chart showing the status of the surveys.
6. Click on “General Health Survey,” and answer as many of the questions as you can. You’re done!

**Notes:**
If your contact information (mailing address, email address, etc) has changed, update your ‘profile’. This change can be made from either the ‘Welcome’ screen or a specific dog’s screen.

Pedigree information, if known, can be added on the dog’s screen by clicking on ‘Pedigree’ in the survey chart.

You can also check the status of the DNA sample to make sure the sample was received and logged correctly by clicking on ‘DNA Status’ on a specific dog’s screen. If the received status is marked ‘no’ and you know a sample was submitted, please contact one of the DNA Initiatives Committee members listed below.

If you have problems or questions, please contact:
- Elaine Azerolo - eazerolo@centurytel.net
- Kathy Drobnak - kdrobnak@jcfkk.com
- Lee Martin - leemartin1@sbcglobal.net
FOLLOW THE MONEY…HOW YOUR DONATIONS ARE MAKING THE NEW STUDY A REALITY!

— Pam Mandeville

For over two decades, Wheaten fanciers have supported many research projects dedicated to finding means to diagnose and treat protein-losing diseases and to discovering their causes. We’ve provided information and samples and our time. And we’ve given generously, both in support of specific efforts and to build up funds for promising future projects.

This fall, the announcement of AKC-CHF funding for Dr. Littman and Dr. Henthorn’s “Genome-wide Association Study of PLE/PLN in Soft Coated Wheaten Terriers” study was greeted with great excitement by everyone in the breed. Like most such grants, it did not fully fund all aspects of the research.

In the past, such an announcement would be quickly followed by another for a new fundraiser. This time was different. This time, fanciers would not be asked again for financial donations; the needed funding is coming from the contributions of Wheaten owners over the last two decades.

The SCWTCA, the Endowment, and the SCWT Genetic Research Fund (GRF) have come together to insure that money will be no object for the completion of this study. Jinx Moore, President of SCWTCA, explained, “Monies are available through AKC-CHF Donor Advised Fund to support Dr. Littman’s and Dr. Henthorn’s efforts in finding solutions to Wheaten health issues.” The Donor Advised Funds (DAF) are managed by the CHF on behalf of SCWTCA, the Endowment, and the GRF.

Jackie Gottlieb, founder of the GRF, was clear about the reason for their support. “The SCWTGRF was established specifically to spur interest in and raise money for genetic research,” she wrote. “This project is the first to meet the criteria of our mission.”

In addition to funding needed for the study itself, the groups wanted to insure that any owner willing to help by supplying a kidney biopsy from their affected dog would not also face a financial barrier to participation. These costs are being shared by the GRF and the Endowment. Carol Carlson, the Endowment chair, said they are pleased to be partnering with the GRF to defray these expenses; “We’re eager to support the ongoing research at Penn that we hope will lead to location of the genes responsible for these diseases.”

The work is just beginning; and while we’re all excited about the promise of this project, as Jackie says, “We are well aware that it marks the beginning. It will take time, dedication, and lots of money in the future to bring it to fruition.”

But for now, we can celebrate that Wheaten owners’ efforts over the last two decades are supporting the work of today.
TAMU INTESTINAL PERMEABILITY TRIAL STUDY UPDATE

October, 2010
Dear Board Members of the SCWTCA,
Below, please find an update on the intestinal permeability trial study that we have been conducting at the Gastrointestinal Laboratory at Texas A&M University (TAMU).

- SCWT successfully enrolled in study (completed): n=9
- We did not enroll any more dogs this year
  - Small number of dogs screened
  - Those dogs that were screened were not eligible
- We are planning on ending the study now despite the fact that we did not reach our anticipated number of dogs, as the study has been ongoing for 5 years already
  - Waiting for approval from the sponsoring pharma company, but we are not expecting any problems
- If all goes well, we might be able to present some of this study at next year’s Annual Forum of the American College of Veterinary Internal Medicine (ACVIM Forum).

Thank you for your support throughout the study period.
Even though we may not have reached the number of dogs we would have liked, we still feel this was a very valuable research project.

Unfortunately, research is not always easy, especially when certain criteria need to be met for enrollment, which is certainly reflected in the present study.

We will keep you updated on the study outcome and possible publications.
Thank you,
Nora Berghoff

[From the SCWTCA Health Coordinator and editor of Wheaten HealthNews, Cecily Skinner: t“...they did find out some good info as they went through at least 2 phases of the project. I referred a number of dogs; some did go through the trial, but at least one was doing good on the current protocol; and Nora and their vet decided the dog should continue as he was; and others were just too sick to go off their current meds to be eligible. PLE is a toughy, as dogs often get pretty sick fast. PLN seems to progress much slower in many cases.”]

UPDATE ON THE COLONY DOGS

The Wheagles celebrated their 14th birthday on October 18. The boys, Edistin and Renin, are healthy; the girl, Gliadin, has PLN. Sam, a Wheagle boy with PLE/PLN, was euthanized on December 16 because his kidneys were failing. The Wheatens were 10 years old on August 1. Threonine has PLE; Taurine is healthy. With the excellent care that the dogs get at NC State, I expect all of them to live through next year.

I asked Dr. Vaden to give us an estimate of the expenses for next year. She responded, “Tonya and I have looked at the budget. She is still estimating $3,500 per dog per year. That means that we have not been impacted by a general increase in the last year and should probably expect one this year. If you add in the cost of Tonya for a year ($17,500), we are looking at $31,860 for next year.”

Last year Shelly donated $5,000 that she received from Idexx and one of her clients donated $5,000. She does not expect these donations to recur this year. The current balance in the Colony dog account is $16,182.15. This is a little more than two and a half months of support.

This is an appeal to those of you who are currently sponsoring a dog and to other local clubs and SCWT Association of Canada to make a donation to our dogs. They are dependent on us.

To make a donation, make your check payable to NC Veterinary Medical Foundation, Inc. and send to: 4700 Hillsborough Street, Raleigh, NC 27606-1499. If you want to pay by credit card, go to http://www.colonydogs.org/ColonyDogsDonationFormJun07.pdf

Colony Dogs . . . we care!
AVMA REVISES VETERINARIAN’S OATH TO EMPHASIZE ANIMAL WELFARE

— Tom McPherson
December 2, 2010

The American Veterinary Medical Association (AVMA) has revised the Veterinarian’s Oath — which all graduates of U.S. veterinary schools take — to stress the importance of animal welfare.

The revision, approved by the AVMA Executive Board at its meeting this month, is as follows: “Being admitted to the profession of veterinary medicine, I solemnly swear to use my scientific knowledge and skills for the benefit of society through the protection of animal health and welfare, the prevention and relief of animal suffering, the conservation of animal resources, the promotion of public health, and the advancement of medical knowledge.”

“The Veterinarian’s Oath reflects every veterinarian’s aspirations for themselves and the veterinary profession,” says Dr. Bruce Nixon, Chair-Elect of the Animal Welfare Committee. “It’s a promise that each veterinarian makes at graduation, so these words have tremendous meaning. The Animal Welfare Committee recommended these changes to emphasize that veterinarians have responsibilities not only to animal health but also to animal welfare.”

“These changes make it clear that the scope of veterinarians’ efforts toward improving animal welfare include not only treatment, but also prevention of suffering and promotion of good welfare, which is consistent with today’s approach to veterinary practice,” adds Dr. Gail Golab, Director of the AVMA’s Animal Welfare Division.

The AVMA, founded in 1863, is one of the oldest and largest veterinary medical organizations in the world. More than 80,000 member veterinarians worldwide are engaged in a wide variety of professional activities. For more information, please visit www.avma.org.

SHARI BOYD CARUSI’S WHEATEN PET GROOMING DVD

Are you not sure how to properly trim your Wheaten using a clipper and thinning shears? Do you want to learn how to dremel your Wheaten’s nails or brush your Wheaten’s coat?

Shari Boyd Carusi is a breeder and professional handler of top-winning Wheatens. Her DVD will show you how to put a great pet trim on your Wheaten.

The DVD is $25 each for up to 4 DVDs and $20 each for 5 or more DVDs ordered at the same time. Shipping is $3.99 within the U.S.

Please make checks payable to NC Veterinary Medical Foundation, and mail this form along with your check to Holly Craig, 3015 Potshop Road, East Norriton, PA 19403.

Number of DVDs: ________ + $3.99 (shipping inside US) = __________ (check amount)

Name: ____________________________________________

Address: __________________________________________

City: __________________________________________ State: _______ Zip: _______

Phone: ____________________________________ Email: ____________________________

Thank you for supporting the Colony Dogs!
www.colonydogs.org

[All of the proceeds from the DVD support the Colony Dogs. The DVD has raised over $5,000 since it started selling in January, 2008. There are still copies available.]
an elite team trained to sniff out bombs. In March 2007, Lex and Corporal Lee were hit by a rocket-propelled grenade. Lex lost his best friend and nearly lost his own life.

For his bravery in staying by Lee’s side during the attack, Lex was awarded a Purple Heart, but the attack left him with severe shrapnel wounds with fragments still within his body; and Lex was unable to walk on his own. Corporal Lee’s parents adopted Lex, and worked on helping him heal.

Georgetown Veterinary Hospital’s Dr. Lee Morgan is using canine stem cell therapy to help Lex walk again. “The idea is that these stem cells will regenerate some of the lost cartilage, some of the lost tissue, maybe even some of the lost nerve function,” Dr. Morgan told Baltimore station WBFF on Tuesday.

Stem cells are injected into Lex’s hips, knees and bloodstream. After a round of therapy, Lex is already starting to walk again. Veterinarians say he could make a full recovery within just two months.

Dr. Lee W. Morgan, DVM, DABVP was honored as 2008 Veterinarian of the Year by Veterinary Practice News at the Purina® Pro Plan® 54th Annual Show Dogs of the Year® Awards, presented by Dogs In Review®, in New York City. Dr. Morgan trains service dogs for the Seeing Eye Foundation and The Guide Dogs for the Blind. His hospital provides support (low-cost spays, neuters, and microchip readers) to The Bassett Hound Rescue Foundation, Washington Humane Society and other animal shelters. He also established the Robert Walter Morgan Memorial Foundation to raise funds for a mobile veterinary clinic for the Washington, D.C. Police Department K9 unit. More information about Dr. Morgan’s Washington D.C. area veterinary services including Vet-Stem Regenerative Stem Cells is at www.georgetownvethosp.com/services.html
I have learned today of the untimely death of Professor Andrew Nash, whose funeral took place on 7th November 2010. Andrew was associated with Wheatens from the early 1980s, setting up the first Renal Dysplasia Monitoring Scheme in 1984. Not only was he dedicated to his research, he was a thoroughly lovely man; and we were so lucky to have him as our investigator into RD — he put so much into it and, without his advice and testing programme — together with the recommendations of geneticist Bruce Cattanach — on breeding strategies, the breed could very well have been in great difficulty.

http://www.universitystory.gla.ac.uk/biography/?id=WH1208&type=P

Professor Andrew Nash (1944-2010) was a graduate of the University. He was Clerk of Senate from 2002 until 31 July 2008. He held the post of Vice Principal (Learning and Teaching) from 2002 to 2004 and in 2008 he became the Pro-Vice Principal. He retired in September 2009.

Nash graduated BVMS from the University in 1967. Following graduation, he worked as a veterinary assistant in general practice in Ilfracombe, Devon. He returned to the University in 1973 as house physician in the Veterinary School. He was appointed Lecturer in 1975 and Senior Lecturer in 1985. He was awarded a PhD by the University in 1984.

Nash was appointed titular professor in the Department of Veterinary Medicine in 1992. This became a personal professorship of Small Animal Medicine in 1995. He was a Royal College of Veterinary Surgeons Recognised Specialist in small animal internal diseases from 1993 to 2002. He was Director of Glasgow Veterinary Hospital from 1993 to 1996 and spent time as the Vice-Dean for Student affairs and Director of Student Support Services, during which time he was a Senate Assessor.

Throughout his career, Andrew was committed to animal health and wellbeing; in 1969 he was the recipient of an RSPCA Humane Award, he was Honorary President of the Scottish Cat Club from 1990 until 1999, and from 1995 until 2003 he served on the board of the Scottish Society for the Prevention of Cruelty to Animals. He is best known to the University community for his exemplary dedication and commitment as Clerk of Senate and Vice Principal.
TEST! TEST! TEST!

Please remember to test your Wheaten, at least annually. Our health researchers currently recommend that annual testing include a Complete Blood Count (CBC), Super Chemscreen, Urinalysis, and Urine Protein:Creatinine Ratio. Additional screening tests available include the Heska ERD Test, the MA (microalbumin) Test, and the Fecal API Test. Printable Testing Protocols designed for Wheaten owners and also for their own veterinarians can be found on the SCWTCA website at [www.scwtca.org](http://www.scwtca.org).

Retest your Wheaten, according to your own veterinarian’s advice, if any result indicates a cause for concern.

It is essential that you track your Wheaten’s test results and watch for any trends. Early diagnosis of all health problems — including, but not limited to, kidney issues — is vital for a positive prognosis.

An easy-to-use, online Health Tracker is available through a $10 donation to the SCWTCA Endowment Fund ([www.wheatenhealthendowment.org](http://www.wheatenhealthendowment.org)). Please send your donation to SCWTCA Endowment Fund, c/o Rosemary Berg, Endowment Secretary/Treasurer, 37953 Center Ridge Drive, North Ridgeville, OH 44039-2821. You then get the Health Tracker by emailing Anna Marzolino at marzolinoam@aol.com. Anna is also available to help with any questions about how to input data into the Health Tracker.

DONATE TO SCWTCA HEALTH ENDOWMENT

The Board of the Soft Coated Wheaten Terrier Club of America and the Endowment Board thank everyone for their generous donations. Donations either fund grants selected by the SCWT Endowment Fund Board or provide matching funds for grants approved by the American Kennel Club-Canine Health Foundation (AKC-CHF).

Send your contribution to Rosemary Berg, 37953 Center Ridge Dr., North Ridgeville, OH 44039-2821.

Make check payable to “SCWTCA Endowment” (US funds only), or contribute online via the website ([www.wheatenhealthendowment.org/endowmentform.html](http://www.wheatenhealthendowment.org/endowmentform.html)).

DONATE TO SCWT GENETIC RESEARCH FUND (GRF)

The Board of the SCWT Genetic Research Project thanks everyone for their generous donations to the fund! See [http://scwtgrf.org](http://scwtgrf.org) for the current fundraisers.

The SCWT Genetic Research Fund (GRF), in cooperation with the AKC-CHF, sponsors genetic research into the canine genome that is specifically aimed at identifying the genes responsible for the transference of PLE/PLN. This information will make it possible for the development of testing protocols to identify Wheatens with protein-wasting diseases.

The SCWTGRF is a 501c3 foundation. To join our effort and make a tax deductible donation, send your check payable to “SCWT Genetic Research Fund” to: David Ronsheim, Project Financial Officer, 17827 Fireside Drive, Spring, TX 77379-8017.

Or, visit our website ([www.scwtgrf.org](http://www.scwtgrf.org)) to make an online donation through PayPal.