



# MATSON'S LABORATORY, LLC

est. 1969

*A wildlife laboratory offering cementum aging and tetracycline biomarker screening*

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## Matson's Laboratory News

December 2012

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Matson's Lab began operating in the small Montana community of Milltown in August, 1969. Founders Gary and Judy Matson continue to operate the lab, and are collaborating in a management transition that will take place over the next 5 years. Services will continue uninterrupted using our established methods and honoring our [core values](#).

**About the Lab** by Gary Matson

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Gary and Judy

Judy and I started the lab in the backyard of our Milltown residence in the fall of 1969. With the help and support of our many wildlife research/management clients, we have been able to steadily grow our service to one that is a primary worldwide source for cementum age analysis. Our emphasis has been to maximize histological processing reliability and analysis accuracy through ongoing evaluation and rigorous standardization.

After more than 4 decades of satisfying service to the wildlife community, Judy and I found ourselves much less young and ready to transition the lab operation to a new owner. Last fall, I reported a purchasing arrangement with our then-Manager, Lindsay Ketchum and her husband,

David. Early in 2012, David decided to pursue his professional development as a Librarian and the family has moved to Oregon.

We continue with the same ownership transition goal of enabling permanent operation of the lab with no change in the service level. We are interested in finding a buyer with strong interest in continuing into the foreseeable future the lab's 43 years of participation in wildlife research and conservation with the highest standards of performance. If that goal matches yours, we will be happy to hear from you. Expressions of interest should be sent to Alan Tronson, AdvantEdge Advisors, 406-327-9696, [Alan@AdvantEdgeAdvisors.com](mailto:Alan@AdvantEdgeAdvisors.com)

All of us at the Lab are grateful for the opportunities to work with you. As the "oldest" member of the crew, I particularly appreciate the support and friendship of so many with whom we have shared for so long the overall goal of care and conservation of our priceless natural resources. -Gary

**Advanced Scheduling**



The Lab specializes in efficiently delivering accurate analyses. We greatly appreciate the help our clients provide by scheduling work in advance. The more advance, the better. Many schedule work a year ahead and sometimes multiple years. Advance scheduling ensures the age data will be received when needed, and we can always meet deadlines when work is scheduled at least a year ahead. We are not concerned whether work scheduled in advance is the exact quantity actually received. Advance scheduling does not obligate our clients, who are always free to cancel or alter work that has been advance scheduled. We appreciate it when these changes are made as far in advance as possible.

**CITES**



The CITES permit process continues to offer challenges for our clients outside the U.S. The permit must accompany all samples sent to us from other countries. Any sample we receive that is accompanied by a deficient CITES permit can potentially be confiscated by the U.S. Fish and Wildlife Service. The most frequent deficiency is the lack of Customs validation at the time of export. Others include the lack of an original copy (required for USFWS clearance), expired valid date, or incorrect quantity. Permits should

be inside the parcel to prevent their removal by uninformed handlers. The Lab will take care of clearance with USFWS when the parcel is received. Please refer to the reminders on our web site: [International Shipping](#)

It is important to use only government mail and not any private courier such as FedEx, TNT, etc. Couriers have different clearance processes, which may result in delays and extra cost. In 2010, a client overseas sent a parcel through a courier who mishandled the CITES permit document. The parcel was seized in New York when USFWS inspectors were unable to locate the permit and held for 2 years before finally being returned to the sender.

Our attempts to obtain from the USFWS a classification as a scientific facility, which would be accompanied by lower import fees, have not been successful so far. The USFWS currently charges the Lab a minimum fee of \$93 for each shipment we receive from outside the U.S. The fee is \$186 for protected species accompanied by the required permit (e.g. CITES). To compensate for this high cost to our clients, the Lab does not collect the full fee from our clients but adds \$75 to processing charges for samples from unprotected species and \$150 for samples from protected species.

### **Who Are Our Agers?**



Among our 7 staff members, 4 are capable of cementum age analysis. While Gary can age all species, 3 of our most experienced staff can age some of the others. The process of training for age analysis of any one species can take several months or longer. Training begins with a study of the standardized tooth type- and species-specific analysis model. As the trainee begins analysis, Gary checks all results and describes the cementum characteristics responsible for differences between our results. When a minimum precision of 90% is consistently attained, training is complete. After that, Gary checks 10% of results. Here is a tabulation of the most recent 100 precision measurements between Gary and a staff member as an example of our precision level (number of tests in parentheses): 100%(78), 99%(7), 98%(5), 97%(3), 96%(2), 95%(1), 94%(0), 93%(1), 92%(2), 87%(1).

### **High Experience Level; New Record for Oldest Lynx**



Our extensive experience at applying standardized methods for processing and analysis is the key in providing results that are consistent and within the narrowest accuracy limits possible. During the period from September 2011 to September 2012 the Lab processed 93,834 teeth. Since we began keeping track in 1978, we have processed nearly 1.9 million teeth. For a complete breakdown of experience by species: [Experience, Accuracy & Precision](#)

During 2012, a new record was set for the oldest lynx aged at our lab. The animal was from Switzerland and aged as 18 years old.

### **Recent Results of Accuracy and Precision Testing**



Age analysis accuracy varies among species and among individuals of the same species. Species such as caribou have complex, irregular cementum layers and can be expected to be aged less accurately (compare with results for elk). Teeth from populations supplementally fed also have complex cementum layers, contributing to lowered accuracy. Tabulations of results from precision and accuracy tests done during the last year follow:

**Accuracy tests for known age, wild populations, September 2011 through September 2012**

| Species | Source  | Tooth type | n  | Average age | ± 0 | ± 0 or ± 1 | % ± 0 or ± 1 |
|---------|---------|------------|----|-------------|-----|------------|--------------|
| Elk     | Wyoming | I1         | 40 | 5.4         | 32  | 38         | 95%          |
| Caribou | Alaska  | I1         | 23 | 5.8         | 12  | 17         | 74%          |
| Muskox  | Alaska  | I1         | 15 | 3.0         | 11  | 4          | 100%         |

**Accuracy tests for known age, supplementally fed white-tailed deer, September 2011 through September 2012**

| Species           | Source  | Tooth type | Known age | Cementum age |
|-------------------|---------|------------|-----------|--------------|
| white-tailed deer | Georgia | I1         | 4         | 3            |
| white-tailed deer | Georgia | I1         | 3         | 6            |

**Precision tests using blind duplicates, September 2011 through September 2012**

| Species    | Source     | Tooth type | n  | Average age | ± 0 | ± 0 or ± 1 | % ± 0 or ± 1 |
|------------|------------|------------|----|-------------|-----|------------|--------------|
| Elk        | Colorado   | I1         | 3  | 10.7        | 3   | 3          | 100%         |
| Pronghorn  | Texas      | I1         | 13 | 4.9         | 9   | 12         | 92%          |
| Moose      | NW Ter     | I1         | 5  | 7.2         | 2   | 5          | 100%         |
| Muskox     | Alaska     | I1         | 12 | 7.2         | 4   | 9          | 75%          |
| Black bear | NW Ter     | PM         | 2  | 10.5        | 2   | 2          | 100%         |
| Coyote     | S Carolina | canine     | 27 | 1.2         | 21  | 27         | 100%         |

Reference literature regarding Matson's Lab cementum age analysis accuracy: Hamlin, Kenneth L., D. F. Pac, C. A. Syme, R. M. Simone, and G. L. Dusek. 2000. Evaluating the accuracy of ages obtained by two methods for Montana ungulates. J. Wildl. Manage. 64:441-449.

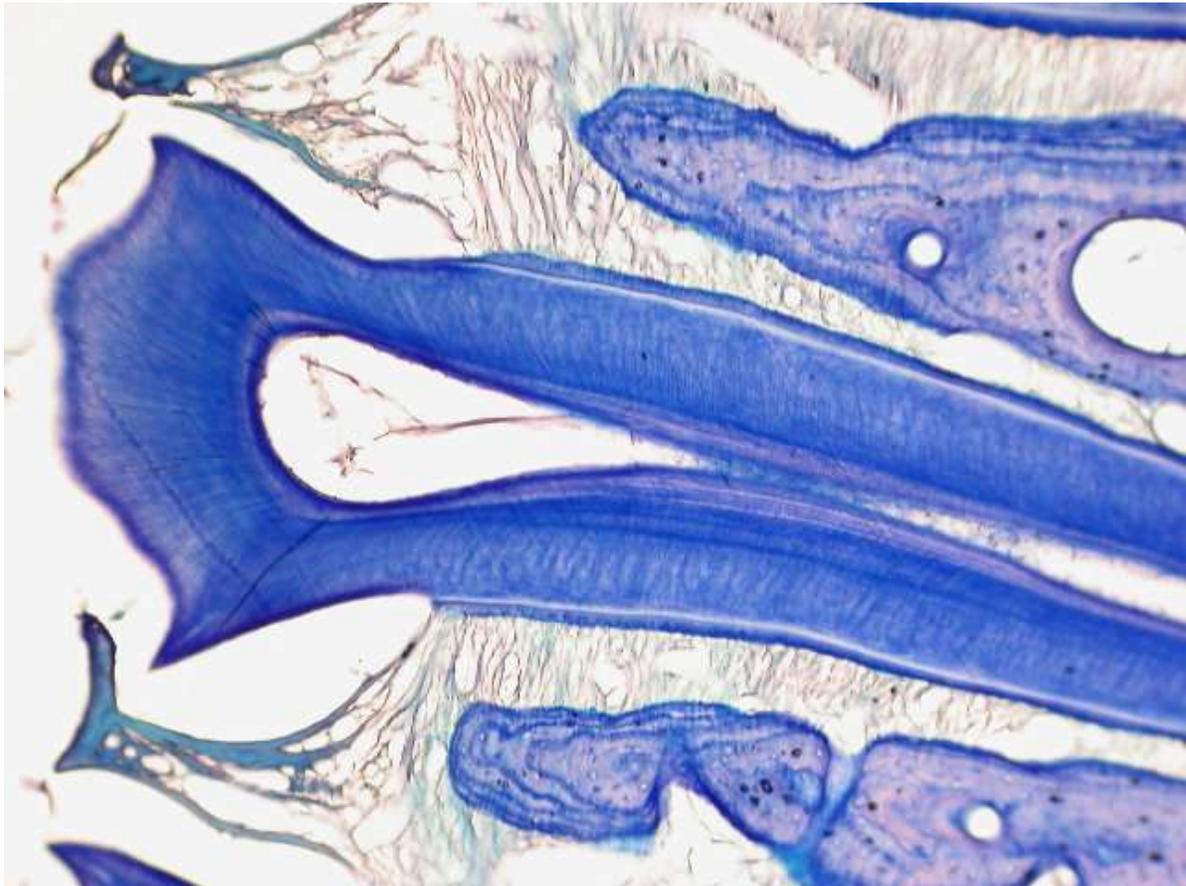
We appreciate opportunities to test accuracy and precision and are happy to receive known age teeth as well as blind (aged without knowledge of pair identification) duplicates. We process, without charge, known age teeth and duplicates in any quantity up to 10% of a sample size and not exceeding 50 teeth.

**Both Ends of the Alphabet - Bats and Wildebeest**

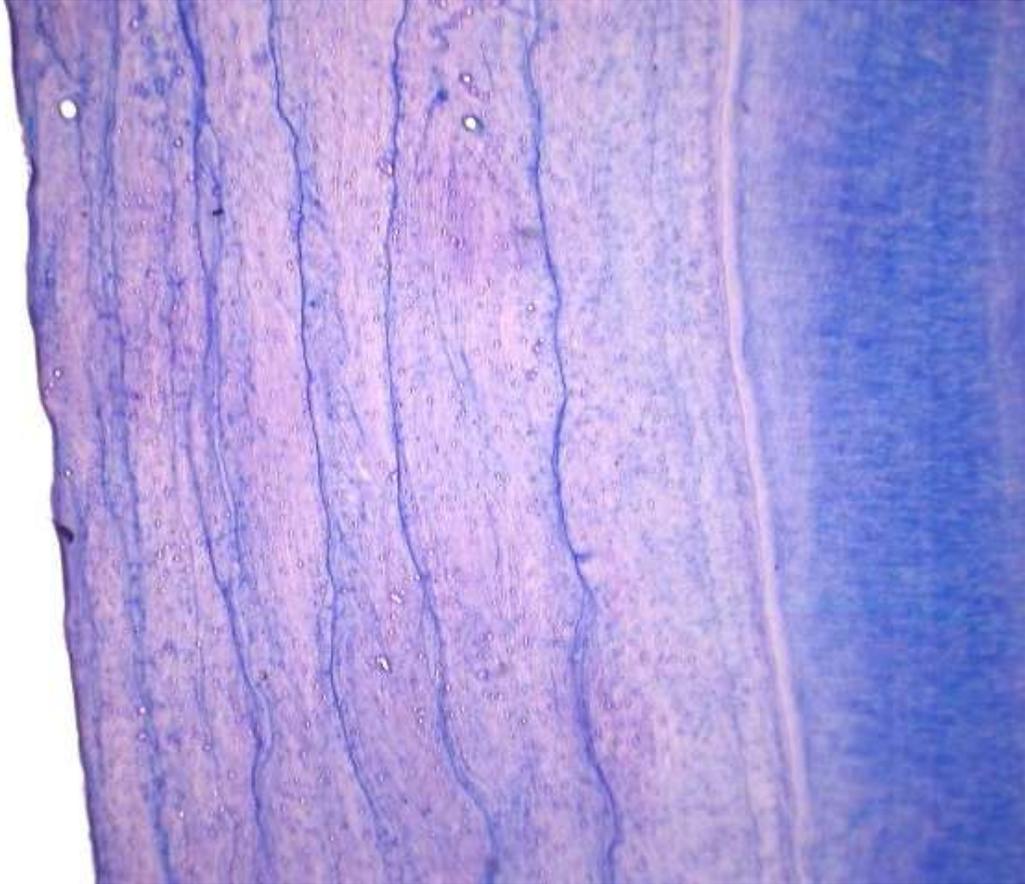


Although legal harvests are the source of nearly all the specimens we process, we also process and analyze specimens from other species. Results from species we're most experienced with are based upon standardized and validated models. Results from species with which we are inexperienced are evaluated on a case-by-case basis. When cementum layers are regular and clearly identifiable, we consider results to be good estimates pending evaluation of precision and accuracy as well as the accumulation of experience with larger numbers over time. In some cases, results are reported as

"reasonable estimates" of age.



Big brown bat mandible. 100X. Cementum lacks annuli; interpretation of rest lines in bone will depend upon experience and testing for accuracy and precision.



Wildebeest I1, 40X. Initial observations of regular, distinct cementum layers suggest acceptable accuracy of cementum age results. Further evaluation and experience are needed to establish full confidence in the aging method.

**Prices**



Most prices remain unchanged for the coming 2012-2013 season. Two exceptions are prices for age and reproductive history analyses which will increase from \$1.25 to \$1.35 per specimen. The price change will apply to samples received after 1 January 2013. As always, prices based on existing contracts or agreements do not change.

**Thank You**



Your inquiries, as always, are welcome. Thank you for taking time to look over this update!

**Quick Links...**



[Our Website](#)

**Contact Information**

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