

保存科学に関わる活動報告 Report on Conservation Science Activities

保存科学室の役割のひとつは作品の予防保存、すなわち作品が劣化してから対処するのではなく、日常的に作品を適切な環境で保存し、作品に起こりうるリスクを回避するための手段を講じ、可能な限り劣化を予防することである。そのために、以下の業務を行なった。

1. 環境管理

収蔵庫および展示室を中心とする館内の環境管理のため、施設担当係および施設管理委託業者との連携を行ない、施設点検等の作業を行なう場合には事前の報告と事後の確認、空調機械等に故障が生じた際にはその原因と対処法の報告を委託業者から受けるように徹底している。また、委託業者に対して、温湿度の変化が作品に与えるリスクの説明を繰り返し行ない、環境管理への高い意識を維持するよう促している。それによって、施設関係の作業に伴う人為的ミスを抑制するとともに、空調機械の不具合にも適切に対処してもらい、館内の温湿度変化を最小限に抑えている。

2. 館内への生物侵入・生息状況の調査

この調査は、生物の侵入箇所や発生箇所を特定することで最小限の薬剤の使用、清掃の徹底、隙間をふさぐことなどにより館内に侵入・生息する個体の絶対数を減らし、生物による被害が起らない環境をつくることを目的として、2004年度から行なっている。具体的には、季節ごとに年4回、屋外と接する扉や開口部付近を中心に、館内に約100個の捕虫用粘着トラップを設置した。

作品に被害を与えるおそれのある害虫としては、レストランの周囲や新館・本館の連絡口でゴキブリが、館内全域でクモが捕らえられたが、大量に捕獲されたわけではなく、現時点では薬剤を使用して駆除する必要はない。しかし、展示されている彫刻作品に虫の卵が見つかったため、トラップの設置とは別に作品の定期点検を強化する必要が認められた。また、ダンゴムシ、ワラジムシ、チョウバエ、ユスリカなどが屋外に通じる出入り口で捕捉された。これらの虫は作品に被害を及ぼさないが、来館者に不快感を与える。春・夏にこれらの不快害虫が大量に発生したため、8月初めに中庭の草刈りを行ない、9月初めに前庭にカーバメート系の忌避剤を散布した結果、効果が表われた。

3. 貸出作品の管理

作品貸出が適切な保存環境のもとで行なわれるよう、貸出先の施設環境をファシリティ・レポートにより事前に検討し、必要に応じて、作品保存のための適切な処置を貸出条件として求めている。また、貸出作品のクレートと作品裏面に装着したデータロガーにより、作品搬出から返却までの期間の温湿度を測定し、記録されたデータの分析結果をもとに報告書を作成している。データの分析により、輸送期間中の作品の温湿度には概ね問題がないことが確かめられている。

これは貸出にあたり当館の規格に沿ったクレートの作製を条件付けているためである。一方、展示期間中に許容範囲を超えた温湿度の変動が見られるケース、また展示室の温湿度設定自体がファシリティ・レポートの記述や当館から提示した条件に合っていないケースが少なくない。こうした事例に対しては、報告書をもとに貸出先への通知を行ない、改善を求めている。(研究補佐員/高嶋美穂)

The Conservation Science Section mainly carried out preventive conservation, which is to reduce potential damage and deterioration of works of art on display and in storage to the greatest degree possible by appropriately controlling the museum environment and avoiding potential risks. Specifically, preventative actions are taken rather than relying on remedial conservation treatment to individual objects after damage. This work includes Environmental Control Management, Pest Control and Loan Facilities Management.

1. Environmental Control Management

The Conservation Science Section is responsible for supervising environmental control, which is carried out by a facilities manager and the staff from a facilities management company allocated to the museum. Those staff members carry out daily facilities inspections, such as climate control, and museum facilities maintenance. They make weekly reports to the Conservation Department of the results gained from their climate control inspections, and provide details about the causes of, and solutions to, any problems that arise in the climate control system. Conservation Science Section staff members work repeatedly with the facilities management staff members to ensure that they fully understand the risk to art works when there are fluctuations in climate, thus maintaining a high level of awareness regarding environmental control. These procedures reduce the risk of human error upon facilities operation; encourage appropriate and immediate measures against any problems with the climate control system, and thus lessen to the greatest degree possible changes in the temperature and relative humidity (RH) in the galleries and storage areas.

2. Pest Control

A survey was begun in fiscal 2004 in order to identify places where insect pests could enter or inhabit the museum's facilities. The goals of the survey are to minimize the actual numbers of such pests within the museum by the minimal use of insecticide and to create an appropriate environment in which pest-based damage cannot occur. Specifically, first, approximately 100 insect traps with adhesive paper for the collection of insects were set up throughout the interior of the museum four times a year. Second, regular building maintenance measures, such as cleaning, were performed and prevention measures taken to eliminate gaps for entry.

Cockroaches (Blattidae) are one of the types of insects that directly harm art works, and they were found in the area around the museum restaurant, and in the connection passageway between the new building and the main building. Spiders (Araneae) were found throughout the museum's buildings, however the trapped number of these two types of pests was relatively small throughout fiscal 2006 and

no active eradication using insecticide is necessary at this point. However, insect egg shells have been found on sculptures on display, and this confirmed the need for enforcement of a periodic inspection of art works separate from the survey of insect traps. Further, a large number of pill bugs (Aradillidiidae), woodlice (Porcellionidae), moth flies (Psychodidae) and non-biting midges (Chironomidae) have all been captured near external doors. While these insects do not directly harm the art works, they disconcert museum visitors. Since there was severe infestation by these insects in spring and summer 2006, two measures were carried out, namely the central courtyard was mowed in early August and the forecourt was sprayed with carbamate insecticide in early September. These measures have proved effective.

3. Loan Facilities Management

The Conservation Science Section also provides management and consultancy regarding loan facilities as one of its regular duties. This process involves evaluating facilities reports and analyzing climate data on works of art on loan. In order to ensure that the borrowing institution's environment is maintained at appropriate levels for art works on loan, prior to any outgoing loan, facilities reports are submitted to the Conservation Science Section from all borrowing institutions, and as necessary, appropriate condition measures are stipulated in the loan. Further, a conservation scientist installs data loggers on each loaned art work, i.e. both inside and outside of the transport crate and on the back of the art work, which monitor detailed climate changes (temperature and RH) within the transport crate and in the gallery where the art work is displayed throughout the loan period. Thus these loggers provide data on conditions from the time the work leaves the NMWA until its return. The collected data is analyzed and evaluated, and then written reports are made by the conservation scientist. The analysis of this data suggests that temperature and RH within the crates remained stable during the transportation of the art works. The ability to achieve such good results is thanks to the stipulated loan requirement that all crates used for loaned art works meet the NMWA's high standards for construction and form. Conversely, there are quite a few instances where a large degree of climate fluctuations occurred during display, or where the temperature and RH settings were outside those noted on submitted facilities reports or those stipulated in the loan agreement. In such cases, the NMWA required that the borrowing institutions involved carry out facilities improvements before any possible future loans would be considered.

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